

A
M E D I C I N A L
D I C T I O N A R Y:

INCLUDING

PHYSIC,
SURGERY,
ANATOMY,

CHYMISTRY,
AND
BOTANY,

In all their BRANCHES relative to MEDICINE.

TOGETHER WITH A

HISTORY *of* DRUGS;

An ACCOUNT of their Various

PREPARATIONS, COMBINATIONS, and USES;

AND AN

INTRODUCTORY PREFACE,

Tracing the PROGRESS of PHYSIC, and explaining the THEORIES which
have principally prevail'd in all Ages of the World.

With COPPER PLATES.

By R. JAMES, M. D.

V O L. II.

*The LORD hath created Medicines out of the Earth, and he that is wise will not
abhor them, Ecclesiasticus, Chap. xxxviii. Verse 4.*

Ἱηλική, τεχνέων μὲν πασέων ἐς τὴν ἐπιφανείαν.

HIPPOCRATES.

L O N D O N:

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M.DCC.XLV.



MEDICINAL DICTIONARY:

BEING A

BODY of PHYSIC and SURGERY.

CAL

CAL

CALDAR, Tin. *Johnson.*
CALDARIUM. The same as *Laconicum.* *Bygon.*
card. See **LACONICUM.**

It also imports any Vessel for boiling Liquids.

CALDERIÆ *Italicæ.* Hot Baths near *Ferrara* in *Italy*, good in Difficulty of Urine. *Castellus.*

CALDUS, for **CALIDUS**, (*καλιδος*) is frequently used by *Scribonius Largus.* *Castellus.*

CALEFACIENTIA.

The *Calefacientia* of the *Latins* are the same with the *θερμαστικά* of the *Greeks*, and denote no more than what we commonly call *warming Medicines*. That the Natures and Qualities of the several Medicines, coming under this Denomination, may be the more thoroughly understood, it is necessary to observe, that there may be Heat without any external Appearance of Fire, and that it discovers its Presence by numberless Effects; but in no Case more conspicuously than by the Dilatation of the Air in the Thermometer, *Boerhaave's Chym. Vol. 1.* The Means, then, by which Warmth is generated in Bodies, are the very same with those by which apparent Fire is produced: Where there is Heat, there also is a proportionable and correspondent Motion and Agitation of the Parts of the Body said to be hot; and, *vice versa*, where there is an Agitation of the Parts, there is a proportionable Heat or Warmth.

Motion, considered in an abstract and metaphysical Light, does not generate Heat, since a Body, moving in *Vacuo*, can never produce any such Effect; so that Warmth must be originally owing to a brisk and lively Attrition of such Bodies as are naturally susceptible of Heat, and capable of communicating it, *Mazini Mech. Med.* and *Acta Eruditorum Lipsiæ*, for the Year 1729. The Generation of Heat in Bodies, and its several Degrees, are determined by three Mechanical Axioms; the first of which is,

1. That the more dense the Matter is, the Degree of Heat generated is proportionably the greater: By the Laws of Mechanics, if two Bodies move with an equal Degree of Velocity, the Effects produced by them will bear a direct Proportion to their respective Densities, or Quantities of Matter.

2. The greater or stronger the mutual Pressure of the Parts of one Body upon those of another is, the Heat generated is, *ceteris paribus*, proportionably the more intense: Thus two Plates of Iron, gently and slowly moved upon each other, do not produce the same Degree of Heat, as when the Attrition is stronger and brisker.

3. The denser Bodies are, the stronger their mutual Pressure, and the quicker their Motions, the greater is the Degree of Heat produced; for in proportion as the Velocity is increased, so the mutual Resistance between the Body moved, and that which may be said to sustain the Motion, is augmented.

From these Considerations we come to understand, why such human Bodies as are dense, hard, ponderous, robust, accusom'd to Exercise, and abound with compact Humours and Juices, are always found not only warmer, but also require a longer time to become cold than others; since such Bodies, by a vigorous Application of the Solids to the Fluids, render'd dense by Compression, may reasonably be supposed not only to generate a greater Degree of Heat, but also to retain it longer than Bodies of an opposite Make, or in another State. Hence also we understand, why the internal Parts of Carcasses, deprived of vital Heat, grow cold very slowly; whereas their external Parts

VOL. II.

become so very soon. On the contrary, it is obvious, that lax, ~~hot~~ languid, and weak Bodies, can never excite such a Degree of Heat in their aqueous Humours; because the Attrition of their Parts being weaker, their Fluids must be less dense, and the Surfaces of their Parts the more lax, and consequently less capable to retain the generated Heat. See *Boerhaav. Chym. Vol. 1.* *Aristotle* was well apprised how much the Density or Thinness of the Blood, flowing in the Vessels of Animals, contributed to generate or produce Heat in their Bodies, as is obvious from the following Passage in *Lib. 2. Cap. 4. de Part. Animal.* "That Blood, says he, which is too much diluted, is cold, and consequently cannot become hard: But those Animals whose Blood abounds with a great Number of gross thick Fibres, have more of an earthy Principle in their Constitutions, and are fierce, wrathful, and furious, for Rage begets Warmth; and solid Bodies, and all Substances of a firm Texture, when become hot, warm more powerfully than such as are of a moist and humid Nature. Now the Fibres of such Animals are solid, and of a terrestrial Nature; so that, by Rage, Fermentations and preternatural Heats are excited in the Blood: Hence it happens, that Bulls and Boars are of a fierce, a wrathful, and furious Disposition, because their Blood abounds more in solid Fibres than that of some other Animals." For the Mass of blood consists not only of red Globules, such as come more strictly under the Denomination of Blood, but also of Serum, in which these Globules swim; and the larger the Quantity of Serum is, the thinner and more diluted the Mass of Blood must of course be, and *vice versa*. On the other hand, the thinner the Blood is, the more faint and weak the Attrition caused by its Motion must be; and the weaker its Attrition is, the smaller the Degree of Heat generated must be; therefore the thinner the Mass of Blood is, the fainter the Heat produced by it must be, and *vice versa.* *Boerhaav. Institut. Med. Sect. 223.* Hence the Reason is obvious, why Men of hardy robust Constitutions, who have their Vessels fill'd with a thick and rich Blood, are more subject to burning Fevers, and inflammatory Disorders, than those of lax and weak Constitutions, whose Vessels contain a thin and much diluted Blood. Hence also appears the Reason, why Venesection is the most infallible Method of diminishing the Heat of the Body; because, by lessening the Quantity of the Blood, its Attrition in the Vessels, on which the Density of the Humours depends, is proportionably lessen'd. But to consider the Method in which Heat is generated and increased in the human Body, a little more accurately: The Blood itself is a Body; the Heart also, and an Artery, are Bodies; and consequently the Heart cannot contract itself without pressing upon the Blood, and this Pressure is continued by the Arteries. When a Body moves through a Cylinder, the Attrition produced is little or none at all; whereas when the same Body moves from the Base towards the Apex of a conical Canal, it must strike against its Sides: Hence arises a Repercussion, and consequently an Attrition. Now the Arteries of our Bodies are such conical Canals, and consequently resist the Impression of the Blood; therefore an Attrition must necessarily be produced; and by Natural Philosophy we are taught, that where there is Attrition, there also must be Heat; so that there can be no Heat in the human Body, but what is produced by the Circulation of the Fluids; and when this Circulation is stopp'd, the Heat is of course destroy'd. Hence the Degrees of Heat, in a human Body, are most properly estimated by the Pulse;

Pulse; since the best Pulse denotes an equable Heat diffused thro' all the Body; whereas the Pulse, preternaturally increased or diminish'd, indicates a proportionable Increase or Diminution of Heat, *Boerhaav. Instit. Med. Sect. 220. and 968.* Hence the Reason is obvious, why the Arterial Blood of the Brain is the coldest of any; since, in the Arteries of the Brain, the Systole and Diastole are very faint and languid, because, upon their entering the Cranium, they lose their muscular Coat. This Observation, for the same Reason, holds true with regard to the Blood in the Bones. The muscular Coat of the Arteries produces a proportional Pressure of the Parts of the Blood upon each other: Hence arises Attrition, and this Attrition ceasing, or being diminish'd, the Heat accordingly ceases, or is impair'd. From these Circumstances we are also able to account for the arterial Blood being hotter than the venous Blood, since, in the Arteries, the Blood is always carried from wider into narrower Parts, where the Resistance, the Pressure, the Attrition, and consequently the Heat, are increased; whereas, in the Veins, the Blood is carried from narrower into wider Parts, where the Resistance, the Pressure, the Attrition, and consequently the Heat, are diminish'd. The Reason why some Men, otherwise in a good State of Health, who faint away upon seeing Phlebotomy perform'd, first become cold at the Extremities, is, because in these Parts the Humours first begin to stop. Since, then, all the Heat in a human Body is produced by the Motion of the Fluids, and since the Excess of Heat bears a joint Proportion to the Attrition of the moving Fluids with themselves, and with the Vessels in which they flow, it is hence obvious, that whatever increases the Velocity of their circulatory Motion, must of course augment the Heat of the Body; so that, by Motion or Exercise alone, the Degrees of Heat are not only increased in a human Body, but also bear a Proportion to the Velocity of that Motion, whether it be Running, or any other kind of Exercise. The Reason why *Hippocrates*, in the fifteenth Aphorism of his first Section, asserts, that in Winter, and the Spring, the Belly is naturally hotter than at other Seasons, is, because at these Times the Blood flows thro' Vessels braced up, and render'd narrow, by the Influence of the external Cold; for, if the same Quantity of any Liquid is to move thro' a Vessel or Canal narrower by one half than the Vessel it formerly moved in, it will flow quicker by one half than it did in the other: Hence its Attrition, and consequently its Heat, must be increased. "The Circulation of the Blood," according to *Hoffman*, in *Med. Rat. Syst.* "is the immediate and productive Cause of Heat in the human Body; and all Substances which increase this Circulation, produce correspondent Degrees of Heat in it; whereas such Substances as retard its Motion, of course proportionably impair the Heat." From what has been said, it is obvious, that under the Denomination of heating Medicines, all such are to be rank'd, as increase the Velocity of the Circulation, and produce a greater Pressure of the Vessels upon the Fluids; since upon this Circumstance depends the Density of the Humours, which, as it is the principal Cause, so may it also prove the Effect of an increased Degree of Heat. Among the Medicines of this Kind, we may reckon,

1. Stimulating Substances, among which are the Four greater hot Seeds of Anise, Caraway, Cumin, and Fennel; the Four lesser hot Seeds of Bishops-weed, Stone-parsley, Smallage, and wild Carrot; and the Four hot Ointments, which are the Ointment of Marshmallows, that of *Agrippa*, that call'd the *Unguentum Aregon*, and the *Unguentum Martiatum*.

2. To this Class also belong Astringents, and such Substances as block up the Pores externally; such as moderate Cold, a heavy Air, cold Water, tight Cloaths, or thick Bed-cloaths.

3. Among such Things as increase the Heat of the human Body, we may also reckon Muscular Motion, and principally Frictions.

In the last Place, to this Class belongs external Heat, whether occasioned by the Fire, or the Air; to which we may also refer the warm Atmosphere immediately surrounding the Body itself, when shut up from a Communication with the neighbouring cool Air; when, for Instance, the Body, being covered close up in Bed, becomes gradually warmer by the Heat exhaled from itself. According to *Celsus*, *L. 1. C. 3.* "the Degrees of Heat are increased in the Body by Undtion, by Salt-water, especially if hot, by all saline Substances, and by austere Wine." The Distinction of heating Medicines, according to their several Degrees, seems to bear an Air of Absurdity in it, since these Degrees cannot be absolutely determined, but are merely relative to the several Constitutions to whom such Medicines happen to be exhibited. As for Heat externally apply'd to the Body, 'tis to be observ'd, that a dry Heat is more proper for generating Warmth in the Constitution, than a moist one; since the latter, at first, excites the Sensation of Heat, but afterwards augments the Cause from which the Sense of Cold proceeds, by relaxing the Vessels, diminishing their Resistance, and consequently impairing the Pressure which ought

to be made upon the Fluids. In this Sense we are to understand *Hippocrates*, when, in the sixteenth Aphorism of his fifth Section, he asserts, that "too frequent use of hot Substances is attended with Tenderness of the Flesh, and Weakness of the Nerves."

Old Persons, and People of wither'd, dry, and rigid Constitutions, seem to be proper Exceptions from this Rule; since, in consequence of the Relaxation to be expected from a moist Heat, the Passages of the Humours, through their capillary Vessels, are render'd more free and open. The Health of such Patients is, according to *Kallesius*, in his *Philosophia Sacra*, most effectually consult'd by following the Example of pious King *David*, in the like Circumstances. *Langius*, in the twelfth Epistle of his first Book, among the Fomentations which afford the most kindly Warmth, reckons a young Puppy, or a little Boy, laid in the Bosom of an old Man; and immediately subjoins these Words: "Thus," says he, "when *David* was seventy Years of Age, and his native Heat so much exhausted, that he could not become warm by any other Means, he, by the Advice of his Physicians, got *Abishag*, the lovely *Shunamite*, to sleep in his Arms, that the decay'd Strength of his Stomach might be restored by the kindly Warmth imparted by the blooming Lady."

When the Parts are refrigerated by the external Air, provided they are not become quite rigid by the Excess of the Cold, and the Blood is still capable of circulating, they are restored to their former Vigour, by being first immersed in cold Water, and afterwards besprinkled with it; upon which they begin gradually to assume a genial Warmth. *Levini Lemnii occulta Naturæ Miracula*, *L. 4. C. 20.*

From what has been said it is obvious, that heating Medicines are not only proper, but necessary, where thin and diluted Humours are to be inspissated; where the solid Parts, become flaccid, are to be rendered tense; and where the Circulation of the Juices is either to be promoted when stopt, or accelerated when too faint and languid, the Pulse of the Patient, in the mean time, directing the Physician how far to carry on his Design: So that heating Medicines, skilfully apply'd, must be adapted to what we call cold Constitutions; to such as abound with a recrementitious Mucus, to such as are too much relaxed, to the Leucophlegmatic, and consequently to such as are afflicted with cedematous Tumors. But they who practise Physic ought to take due Care, that heating Medicines be exhibited gradually; and that the Body be not warm'd by their Influence all on a sudden, lest, by that means, the Fluids, stagnating in the flaccid Vessels, should be too hastily driven into the capillary Vessels, and there form the most dangerous Obstructions. A Man, for Instance, who, by being long accustomed to a sedentary Life, and a want of due muscular Motion, is become pale, and has acquired a flaccid State of all his Fibres, when, all on a sudden, he uses any violent Motion, or takes large Doses of intently hot Medicines of the more stimulating and acrid Kind, he immediately begins to breathe with Difficulty, and dread a Suffocation, in consequence of the Humours moving too violently through the Vessels, as yet too lax, and unable to make a mutual Resistance to the Impetus of the Fluids, which of course rush into the capillary Vessels, and distend them sometimes to such a Degree as to burst them, and occasion a Discharge of their Contents. Accidents of this Nature happen not only in cachochymic Habits, which abound with acrid and viscid Humours, but also in plethoric Constitutions, where the Juices are good, but move in too slow and languid a manner. *Boerhaav. Aph. 118.* But as a temperate Heat is absolutely necessary for the Preservation of Life and Health, so, as we are told by *Hoffman*, in his *Med. Rat. Syst.* if this Heat is increased beyond its due Degree, an irreparable Loss of the finer Fluids is sustained; and all those Disorders brought on, which draw their Origins from the Juices being too much inspissated, or rendered acrid by the Dissipation of their diluting, balsamic, and aqueous Parts. According to *Hoffman*, in *Med. Rat. Syst.* "Heat generates Salts in the Juices of Animals; for which Reason, when the Heat is increased, as happens in Fevers, the Urine contains a larger Quantity of Salts, and is of a deeper Colour; whereas the more moderate the Heat of the Body is, which is generally the Case with those habituated to a Life of Ease and Temperance; the fainter the Colour of the Urine is, and the smaller Quantity of Salts it contains." From this Passage we learn, that a Change in the State and Condition of the Urine is another Sign of the Heat of the Body being increased or diminish'd; by which, as well as the State of the Pulse, the Physician ought to be directed in the Use of heating Medicines. From what has been said, it is obvious, that the Use of hot Substances is prejudicial in rigid Bodies, where the Juices move quickly, and with a considerable Impetus; and consequently, that they must absolutely be abstain'd from in feverish Heats, and acute inflammatory Disorders. According to *Hoffman*, in the Treatise last quoted "Hot Substances, and such as agitate the Blood too violently, easily convert a mild Humour into a Poison, and a mild Disorder into one of the malignant Kind." He also advises

"you;

" young Men, and such as are in the Vigour of their Age, to abstain, as much as possible, from such Substances as are hot, or have a Tendency to throw the Blood into Commotions; lest, by such a Piece of Imprudence, they should be suddenly cut off by inflammatory Disorders." That heating Medicines ought also to be sparingly and cautiously exhibited to Infants, is also obvious, since their Juices are easily put into Motion, and their Vessels soon irritated; for, according to Hippocrates, in the fourteenth Aphorism of his first Section, they who are in a growing State contain a great deal of innate Heat. Now, that heating Medicines perform the various Offices of Corroboratives, Resolvents, and Discutients, is sufficiently obvious to any one that considers, that the Fibres, the Membranes, and the Blood-vessels, derive a certain Tone, and elastic Force, from heating Substances; by which means the Circulation of the Juices is render'd brisk and lively. But that an Excess of this Heat renders People weak and languid, is a Truth confirm'd by Experience: The Reason of it seems to be, that the thin and aqueous Humours of the Body being too much exhausted, the Blood must, of course, be deprived of the Matter allotted by Nature for the Reparation and Nourishment of the Solids. The incomparable Boerhaave, after making repeated Experiments by means of Fahrenheit's Mercurial Thermometers, in order to determine the greatest Degree of Heat the human Body could endure or breathe in, affirms, that the vital Heat in Men amounts to ninety-two Degrees; whereas in Children it often amounts to ninety-four; that a Man is always hotter than that Portion of the Atmosphere which surrounds him; and that he cannot bear a Heat in his Body greater than an hundred and a few odd Degrees, without a Cessation of the Circulation, and Death; in which Case the Injury is first discover'd by a Depravation of the several Actions of the Head and Lungs. He also affirms, that no one can live in an Air which has ninety Degrees of Heat; but that all Animals hitherto known die very quickly in it. Boerh. Chym.

CALENDULA. A Plant usually thus distinguish'd.

Calendula, Offic. *Calendula fativa*, GARDEN MARIGOLD, Raii Hist. 1. 337. Hort. Monsp. 28. *Calendula simpliciflora*, Ger. 601. Emac. 739. *Calendula simplex*, Park. Parad. 298. *Caltha flore simplici*, J. B. 3. 101. Cod. Med. 25. Hist. Oxon. 3. 13. *Caltha vulgaris*, C. B. 275. Tourn. Inst. 498. Boerh. Ind. A. 113. *Chrysanthemum*, *Caltha*, *Calendula*, Chab. 358. GARDEN MARIGOLD.

The Root of the Marigold is thick, whitish, and succulent, not much branch'd, and dying as soon as it has ripen'd the Seed. The Leaves are long, pretty thick, and juicy, of a pale-yellow Colour, broader at the End than at that Part next the Stalk, somewhat clammy in handling; the Stalks grow a Foot or more high, beset with smaller Leaves. The Flowers grow singly at the End of the Stalks, consisting of a Border of yellow Petals, set about a middle Thrum, of dark-reddish fistular Flocculi; of a strong, somewhat resinous, Smell, standing in green, scaly Calyces, likewise clammy in feeling. The Seed is pretty large and crooked, of a brownish Colour. Miller's Bot. Off.

Of the *Caltha*, or *Calendula*, there are several Species; but the most noted for Medicinal Virtues is that mentioned above.

This Plant is frequently found in the Gardens, and is of so prolific a Nature, that 'tis no easy Task to root it out of a Soil in which 'tis once sown. It begins to flower in the Month of May, and continues to produce Flowers through all the Summer Months; from which Circumstance some imagine it has receiv'd the Names *Calendula*, and *Flos omnium Mensum*. Some call it *Solsequia*, or *Solsequium*, and *Sponsa Solis*; because its Flower opens at the Rising, and shuts at the Setting, of the Sun.

According to Bruyerinus, this Herb is frequently prepared in Broths; and its Leaves, when first appearing, are made an Ingredient in Sallads. The Flowers are only used in the Shops. These are of an aromatic Smell; and when chew'd, exert a penetrating, and almost burning Acrimony: Hence they derive their sudorific Virtues, in which they are scarce inferior to Saffron itself. For this Reason the Flowers of the *Marigold* have merited a Place among the Catalogue of Alexipharmacs; and, according to Schulzius, in his *Prælectiones*, have had uncommon Efficacy ascribed to them, by some very celebrated Physicians, in the Cure of malignant and pestilential Fevers. Velschius informs us, that upon the breaking out of a pestilential Fever, Le Fevre prescribed the Juice of the *Marigold*, to be taken in White-wine as a Vehicle, by which most of the Patients who used it recover'd; and that this same Medicine was the celebrated Arcanum of Vessingius, Eph. N. G. D. 1. a. 4. According to Ray, the Juice may be given from one Ounce to two, for the same Intention. In Consequence of the Flowers of the *Marigold* being possessed of an alexipharmac and sudorific Quality, they are, by some, added, as a fifth, to the other four Cordial Flowers. They may be properly prescribed where-ever stimulating Medicines are necessary; for which Reason a Decoction of them is frequently exhibited, in order to promote an Eruption of the Small-pox; and, according to Ray, a Posset-drink, impregnated with the Flowers, has for a long time been

used in England, to answer the same Intention. By reason of their resolvent and aperient Qualities, they are used in Decoctions for the Cure of the Jaundice, and for provoking the obstructed Menses. Besides, when used as an Ingredient in Vapour-baths, they not only excite the Menses, but also expel the Foetus and Secundines. Etmuller, for the Cure of the Yellow-jaundice, recommends an Ounce of the express'd Juice of the Flowers to be taken with one Dram of the Powder of Earth-worms, upon an empty Stomach. But the same Author informs us, that Riverius thought the Flowers appropriated and adapted to provoke the Menses. These Flowers bruised with Wine, and besprinkled with Salt, contribute, when externally apply'd, to the Discussion of Tumors. "I was informed," says Paulli, "by a Man of Candor, that Warts were extirpated by the Juice of fresh-gathered Marigold-flowers: But the Practice of anointing the Warts three different times upon three Fridays, is too superstitious to deserve the Countenance of a Person of Sense; for they must be anointed with this Juice till we observe them fade, and fall off." On account of the Efficacy of the Marigold in extirpating Warts, it is by some called *Verrucaria*. According to Morison, the Flowers reduc'd to a Powder, cure the Tooth-ach, if laid upon a little Cotton, and apply'd to the Part affected.

The Country Women have a Custom of churning the Flowers with their fresh Butter, in order to give it a grateful yellow Colour. Morison informs us, that the Leaves of the Herb are said to be hot, and to contain a certain heating Acrimony, which yet does not exert itself at first, on account of the Moisture with which it is join'd. For this Reason they are said to render the Body soluble, if used as other Pot-herbs. Hence we may reasonably conjecture, that the Use of the Marigold-leaves in Food is proper for such as have any scorbutic Taint in their Constitutions. According to Paulli, Cameraarius prescribes the Seeds of the Marigold against Worms, and affirms, that for answering that Intention, they are equal to those of Sorrel, Purslain, and Plantain, which are said to be effectual against all Worms whatever. Vinegar of Marigold-flowers is recommended as an Antidote against the Plague, if the Physician takes some Ounces of it before he attends Patients labouring under that Distemper. With this View it is also apply'd to the Wrists, the Temples, and the Nostrils. It is certain, that common Wine-vinegar alone produces the same Effect in the like Case; for which Reason Schulzius affirms, "That if the *Marigold* Flowers do not much augment the Virtues of the Vinegar, yet 'tis at least certain they neither destroy nor diminish them." According to Morison, the Water distill'd from Marigold-flowers is a speedy and infallible Cure for Redness and Inflammations of the Eyes, if dropt into them in the Morning, and at Night; or if a Piece of Linen Cloth, or a little Cotton, is dipt in it, and laid over the Eyes. This Water is also said to be effectual against the Plague; and the Conserve is extol'd as answering the same Intention. The Unguentum *Calendulae Florum*, in the Dispensatorium Pharmaceuticum Ratibonense, is prepared by boiling fresh-gather'd Marigold-flowers with new and unsalted Butter. The Syrupus *Calendulae* is, by Quercetan, in his Pharmacopœia Dogmaticorum restituta, recommended as a Specific against all paralytic Disorders.

CALENDULA ARVENSIS.

Calendula sive Caltha, Cod. Med. 25. *Calendula minor arvensis*, Rupp. Flor. Jen. 138. *Caltha arvensis*, C. B. Pin. 276. Raii Hist. 1. 338. Tourn. Inst. 499. Elem. Bot. 399. Herb. Par. 182. Vaill. Bot. Par. 26. Boerh. Ind. A. 113. Hist. Oxon. 3. 14. Mart. Hist. 1. 135. *Caltha minima*, J. B. 3. 103. *Caltha sive Calendula minima*, Chab. 359. *Calendula arvensis*, Ger. 603. *Calendula sylvestris*, Ger. Emac. 741. WILD MARIGOLD.

Its Leaves are stinking, bitter, and give a faint Tincture of Red to the blue Paper: If burnt in the Candle, they crackle, a little like Nitre; which seems to shew, that the natural Salt of the Earth is arriv'd there, with hardly any other Change than being united with a great deal of fetid Sulphur and Earth. Some prefer the wild *Marigold* to that of the Gardens. Its Juice is given from one Ounce to four: They mix an Ounce of it with a Dram of the Powder of Earth-worms, which has imbibed, a little before, some Drops of Spirit of Sal Ammoniac. The Infusion of the Leaves and Flowers of *Marigold* is taken from three Ounces to six; the Extract, and the Conserve, from one Dram to two. All these Preparations are excellent for the Jaundice, Palsy, Dropsy, Small-pox, malignant Fevers, and Green-sickness. Its Leaves and Flowers are good to eat as a Sallad, especially for Children who have scrophulous Tumors. Casalspinus prescribed the Water of *Marigold* for contagious Distempers: Tragus commended it as an excellent Remedy to cure the Redness and Inflammation of the Eyes. Casalspinus syringed the Juice of *Marigold* into the Ears to kill Worms; and applied the Powder, with Cotton, to the Teeth which ached violently: To restore the Appetite, he advised to use the Flowers in Bud, pickled in Vinegar. At Paris they apply its Leaves to all sorts of Tumors, and Ulcers, which have callous Edges.

Edges. For Corns, they put some Leaves between the Corn and the Stocking, and do not forbear Walking. *Martyn's Tournefort.*

CALENDULA PALUSTRIS *Populago*, Offic. Raii Synop. 3. 272. Dill. Cat. Giff. 52. Elem. Bot. 237. *Populago flore majore*, Tourn. Inst. 273. Boerh. Ind. A. 298. *Caltha palustris*, J. B. 3. 470. Chab. 485. Raii Hist. 1. 700. Merc. Bot. 1. 25. Phyt. Brit. 19. *Caltha palustris major*, Ger. 670. Emac. 817. Mer. Pin. 18. *Caltha palustris vulgaris simplex*, COMMON SINGLE MARSH MARIGOLD, Park. Theat. 1213. *Caltha palustris flore simplici*, C. B. Pin. 276. Rupp. Flor. Jen. 105. Buxb. 50. *Pseudo-helleborus ranunculoides pratensis rotundifolius simplex*, Hist. Oxon. 3. 461. MARSH MARI-GOLD. Dale.

It grows in watery Soils, and flowers in the Month of May. The Herb is only used in the Shops; and is said, by *Dioscorides*, to be good for removing Pains of the Loins. According to *Boerhaave*, it is of a caustic Quality, highly acrid, and resembling Hellebore. Dale *Pharmacol.*

CALENTURE. A sort of Fever, attended with a sudden Delirium, which is common to Sailors in warm Climates, especially upon passing the Line.

The following Case will give an Idea of the Distemper, and the usual Method of treating it.

In August 1693. I was call'd, about Four in the Morning, to see a Sailor on board the *Albemarle* Man of War in the Bay of Biscay, in a violent Calenture. He was between thirty and forty Years of Age, pretty tall, but thin, and had not much Flesh about his Bones. When I saw him first, I found him in the Hands of three or four of his Comrades, who were hardly able to manage him, because of his Strugglings, and constant Endeavours to get from them. I observed, he very often cried out, He would go into the green Fields: His Looks were as furious and wild as those of a Lion; and, every-now-and-then, he would heartily curse those that held him. The first Thing I did was to examine his Pulse: I felt, 'tis true, a disorderly Motion of the Blood in the Artery, and a burning fiery Heat all over his Habit of Body; but could perceive no Distinction or Vibration of Pulse at all. The Surgeon of the Ship, a good experienced Man in that way, had, before I came, attempted to bleed him; but tho' the Vein of the Arm was fairly open'd, yet could he not procure an Ounce of Blood from thence. Upon that I order'd him to open the Frontal Vein, which succeeded no better, for that soon stopp'd too. This put me upon trying, a third time, what Effects the Opening the Jugular Vein might have: From this Vein, tho' our Orifice was pretty large, we had about two Ounces of florid thick Blood, and then it quite stopp'd there too. I was, I must confess, not a little surpris'd at this; and order'd the Surgeon to unbind his Arm, and try whether he could make him bleed again at that Orifice, which I remember he did in a small Quantity, and then stopp'd as before. However, having three Orifices open at that time, we drew Blood sometimes from one, and sometimes the other, where we saw it run most freely. After several Essays of this Kind, I always observed, as the Vessels emptied, he bled more freely, and as fast as I desired. Not long after this, (for he bled well enough now) I observed his Strugglings were not so strong, his Ravings, and Crying after green Fields, left off, his wild Looks much abated, and not only his Pulse had recover'd its due and regular Vibrations, but his Heats were moderated too, and the Fury of his Spirits laid to that degree, that he, that just now was as furious as a Lion, was grown so tame, that one Man was able easily to manage him as he pleased. In this half Hour, as near as we could guess, we took from him about fifty Ounces of Blood from the three Orifices mention'd. By this time I thought we had enough; so I order'd him to his Hammock, as soon as we had secured the Orifices from bleeding again, and directed the Surgeon to give him an Ounce of Diacodium in a Draught of Barley-water, as he went into it. Upon this he slept till about Noon, when he awaked with no other Complaint but of Weakness from his Loss of Blood, and a Soreness all over his Body, occasion'd, I presume, from his violent Convulsions, and Endeavours to get loose.

It is very probable, that when they are seiz'd with this violent Heat and Disorder, which, for the most part, happens in the Night, they steal privately over-board into the Sea, imagining they are going into the green Fields: And this I take to be the Reason we see so few; tho' I have heard frequently in the Mediterranean, in Summer-time, and very hot Weather, of Seamen lost in the Night, which the Sailors took for granted were gone off, upon such-like Occasions, unobserved. And I remember very well, this Person was actually going over-board, when one of his Brethren, who suspected his Design, as he told me, caught hold of him just as he was going to leap off, call'd for Help, and secured him by this Accident. And lastly, Calentures happen oftener by Night than by Day, because our Ships are most closely shut up by Night, and are less airy than they are in the Day-time. *Philos. Trans. Abr. Vol. 4. by Dr. Ouse.*

The following Directions are given by Dr. Shaw.

Rest should be encouraged. Barley-water, with White-wine, is a proper Drink. All Malt-liquors and Spirits are prejudicial. In general, a slender liquid Diet is the most convenient.

The first Step to be taken in the Cure is to bleed the Patient. It not unfrequently happens in this Case, that the Vessels are so full, and the Juices so viscid, that several Vessels must be open'd to obtain the desired Quantity of Blood; for which Reason the Orifice should be made pretty large. The Jugular Vein is here thought preferable to those of the Arm.

Eight or ten Hours after Bleeding, an Emetic may be exhibited; and at Night a large Epispastic should be applied to the Neck. The Bleeding may be repeated as often as there appears to be Occasion. A Purgative should be given at Night, when the Patient goes to Rest.

When the Distemper is pretty well abated, give a lenient Cathartic.

Take of the best Sena-leaves, two Drams and an half; of Rhubarb, cut down, half a Dram; of Salt of Tartar, half a Scruple; of Coriander-seeds bruised, one Scruple: Infuse all in a sufficient Quantity of Spring-water. To every two Ounces and a half of the strain'd Liquor, add of solutive Syrup of Roses, six Drams; Syrup of Buckthorn, two Drams; of Spiritus Nitri Dulcis, and Sal Volatile Oleosum, each thirty Drops: Make up into a Draught, to be used in Conjunction with a proper Regimen, and repeated twice or thrice as Circumstances require.

Gentle Diaphoretics may also be of Use; and the Cure may be completed with the Cortex. This is the common Method of curing a Calenture at Sea.

I have been the less copious upon the Subject of a Calenture, because it is a Distemper I have never seen, nor could I ever get any authentic Account of it from Gentlemen of the Profession who have been at Sea. Some of the Surgeons who attended the last Expedition into the *West-Indies*, assure me, that they never met with any Distemper attended with the Symptoms attributed to a Calenture; and that they believe nothing is meant by it but a violent Fever, attended with a sudden Delirium.

CALERUTH is an Indication of a Desire to the first Perpetual; as when any Thing has a Desire to return to the first Matter from which it proceeded. *Ruland. Johnson.*

CALESIAM, H. M. *Arbor baccifera racemosa, vitis floribus, Acinis oblongis compressis monopyrenis.*

It is a very tall and beautiful Tree: The Wood is of a dark-purple Colour, smooth, and flexible; the Flowers grow in Clusters, at the Ends of the Boughs, very like the Flowers of Vines, and are succeeded by Berries in Clusters, like Grapes or Currants, which are of a round oblong Figure, flattish, green, cover'd with a thin Rind, and full of a succulent and insipid Pulp, inclosing a green, oblong, flattish Stone, within which is a white, and almost insipid, Kernel. Besides the genuine Fruit, which succeeds the Flowers, there is another Sort, which grows to the Trunk and Branches, and is larger than the genuine, wrinkled, Kidney-shaped, cover'd with a watery-green Rind, and consisting of a green, dense, and humid Pulp, within which is sometimes found a small reddish Worm. This Bastard-fruit, as Ray remarks, is no other than Galls or Tumors, excited by the Bites of Insects, to be a Receptacle for their Eggs, and Nourishment for their Brood.

It grows every-where in *Malabar*, bears Fruit once a Year, and is fruitful from ten Years Standing to fifty and upwards: Of the Wood they make Sheaths for Knives and Swords.

The Bark pulveriz'd, and made into an Ointment with Butter, cures the Spasmus Cynicus, and Convulsions excited by great Wounds; and also heals malignant Ulcers, and mitigates the Pains of the Gout. The Juice of the Bark cures Aphthae; and, taken inwardly, is a Remedy for the Dysentery. The Bark of this Tree, with that of the *Codampulli*, reduced into a Powder, purges the Belly, and carries off pituitous and atrabilious Humours. Half a Tea-cup-full of the Decoction of the Leaves and Bark, in Water, is usually given to Women just before their Labour, in order to promote an easy Delivery. *Raii Hist. Plant.*

CALI, Pot-ash. *Rulandus.*

CALICHAPA. The true white Thorn. *Castellus.*

CALIDARIUM. The Name by which *Celsus, Eth. 1. Cap. 4.* calls that Part of the antient Baths which the Greeks named πυρκαϊσίων (*Pyriaterium*), or ὑποκαυσίον (*Hypocaustum*). See **BALNEUM**.

CALIDRIS *Belionii*, *Jenst.* in French, *Chevalier*. A Water-fowl, of the Bigness of a Pigeon, well feather'd, with a long red Bill, blackish towards the upper Part; its Head, Neck, Wings, and Tail, are of an Ash-colour; its Belly white, with very long Legs.

Because its Body is high-mounted, and its Walk swift, they call it the *Chevalier*, as tho' it were mounted on Horseback. It lives about Meadows, Pools, and Rivulets: Its Flesh is very delicious, and of a good Smell. There are several Sorts of them,

them, which differ in Colour: They contain much volatile Salt, and Oil somewhat exalted.

The Calidris is a Restorative and Corroborative. *Lemery des Drogues.*

CALIDUM, *ζεφυρόν*, hot. See CALEFACIENTIA.

CALIETA, *Caliette*. The yellow Fungi on the Juniper-shrub. *Paracelsus de Icteric. Cap. 2.*

CALIGO, in a Medicinal Sense, is an Obtenebation of the Eyes. See ACHLYS and AMAUROSIS.

CALIN. A kind of Metal, like Lead and Tin, prepared by the *Chinese*; of which they make several sorts of Utensils in *Japan*, *Cochin-china*, and *Siam*; they even cover their Houses with them. We often see Chests for Tea made of that Metal, and they import Coffee-pots of the same. *Lemery des Drogues.*

CALIX. See CALYX.

CALLÆON, *καλλάων*. The Gills of a Cock, which, as well as the Comb, *Galen. Lib. 3. de Al. Fac. Cap. 21.* says is a sort of Food, which can neither be commended nor condemn'd.

CALLAF. A low shrubby Tree, of smooth Wood, and Leaves somewhat resembling those of the Cherry-tree, serrated at the Edges, and growing out from the Extremities of the Branches, which are strait, without Joints, flexible, and of a yellowish Colour. The Flowers, which are produced before the Leaves, come forth very thick in *December*, at equal Distances; and are a sort of oblong downy little Balls, of a whitish Yellow, or true yellow Colour, and of a fragrant Smell.

It has a Place in the Gardens of the Nobility, on account of its incomparable Fragrancy; and is cultivated with great Care by the Peasants, for the Profit which they make of its Flowers.

They prepare an excellent Water of the Flowers, especially at *Damascus*, which is of so strengthening a Virtue, that we have none, that I know of, to be compared with it; for, by the extraordinary Sweetness of its Smell, it wonderfully relieves Persons under a Lipothymy. The *Moors* use this Water, both internally and externally, in burning and in pestilential Fevers: It refrigerates and moistens. They make an Oil also of the Flowers, which is serviceable to many Purposes.

This Plant, I am persuaded, was not rightly known to the *Arabian* Authors, no not to *Avicenna* himself, tho' he often mentions it, much less to his Interpreters, who render the Words *Callaf*, *Dechen el Callas*, by the *Willow*, the *Water of the Willow*, and the *Oil of the Willow*; for the *Callaf* is so far from being a Willow, tho' it be very like the low broad-leaved Willow, on which Account I once took it for a Willow, that they are quite distinct Plants, differing in Name, Figure, and Virtues. First, their Names among the *Arabians* are different; for one is called *Callaf* and *Ban*, the other, that is the Willow, *Sassaf*, not *Sassas*, or *Sasaf*, as *Avicenna's* Interpreters wrongly read the Word. They are also of different Qualities; for one has a sweet Smell, the other none at all. The *Callaf* is used by the *Moors* in Fevers; but they make no Use at all of the Willow. Hence it is plain, that the *Callaf*, or *Ban*, is not truly a Willow; however, since it has a great Agreement with the broad-leaved Willow, both in Leaves and Flowers, it signifies not much, if you call it the Aromatic Willow. *Prosper Alpinus, Rerum Egypt. Lib. 3. Cap. 15.*

CALLARIAS, *καλλαρίας*. A kind of Sea-fish, which *Andronandus* and *Rondeletius* take for the Whiting, others for a different Kind, of which they give no Description. *Castellus.*

CALLECAMENON. Burnt Copper. *Rulandus.*

CALLENA. A Kind of Saltpetre. *Rulandus.*

CALLIA. A Name in *Dioscorides* for the ANTHEMIS, which see.

CALLIBLEPHARON, *καλλιβλήφαρον*, from *καλλος*, Beauty, and *βλήφαρον*, an Eye-lid. A Medicine appropriated to the Eye-lids. As the Eye-lids are subject to be deform'd several Ways, so there must be various Kinds of *Calliblephara*; for the Hairs may increase too fast, or fall off, or be of an ill Colour, or be rang'd in a disorderly manner. An Excrecence of Hair is from a Redundance of Humour, their falling off is commonly owing to an acrimonious Humour, their Whiteness to a pituitous Humour, their Redness to a Humour of a like Colour. *Calliblephara* therefore must consist, in a great measure, of such Medicines as are moderately drying, and consume the Humour which vitiates the Hairs; such are *Armenius Lapis*, *Terra Ampelitis*, Soot of Frankincense, burnt Antimony and Lead, *Squama Aëris*, and such-like Medicines, which are endur'd with an acrimonious and drying Quality. *Marcellus*, the Interpreter of *Dioscorides*, says, that the *Greeks* called both the Medicines against the Diseases of the Eye-lids, and such as contributed only to their Beauty and Gracefulness, by the common Name of *Calliblephara*, which, for that Reason, was by *Pliny* variously applied, according to the several Exigencies, to the different Remedies which serve for Glutinating, for Replication, for adorning, for Circumcision, or Anointing of the Eye-lids. *Hermolaus* and *Ruellius* call the Application of such Remedies as adorn

the Eye-lids, and give them an artificial Colour. *Circumcisiones. Gorræus.*

Pliny's Calliblephara are burnt Rose-leaves, the Athes of burnt Date-stones, mixed with Spikenard, the Marrow of the Right fore Leg of an Ox pounded with Soot, and *Terra Ampelitis*; which last, he says, is an Ingredient in *Calliblephara*, and such Medicines as dye Hairs. *Pliny.*

CALLICREAS, *καλλικρίας*. The same as PANCREAS, which see.

CALLIETTE. See CALIETA.

CALLIGONUM, from *καλλος*, Beauty, and *γόνυ*, a Joint, or Knot; the same as POLYGONUM, which see.

CALLIOMARCUS. The Gaulish Name in *Marcellus Empiricus, Cap. 16.* for the Herb *Equiungula*, or Colts-foot.

CALLIONYMUS, *καλλιόνυμος*, from *καλλος*, Beauty, and *ὄνομα*, a Name. A Fish called also *Uranoscopus*, that is, the Star-gazer, frequently found in the *Mediterranean Sea*. It is said to be a present Remedy for a Cataract. It is reckon'd by *Hippocrates, Lib. 2. περί διαίτης*, among the driest of Fishes, and therefore recommended by him, *Lib. περί τῶν ἐνδὲς παθῶν*, as proper Food in the *Leucophlegmacy*, in splenetic Disorders, and a Distemper called by him *Πάχυν νοσήμα*, "a gross Disease," caused by a Collection of white Phlegm in the Belly after a long Fever. See PACHYS.

CALLIPHYLLUM, *καλλιφύλλον*, from *καλλος*, Beauty, and *φύλλον*, a Leaf. A Species of *Adiantum*, otherwise called *Trichomanes*. The Word is used by *Hippocrates* in the seventh Book of the *Epidemics*.

CALLITRICHUM, *καλλιτρίχον*, from *καλλος*, Beauty, and *τριχίς*, Hair. A Name for *Adiantum*, or Maiden-hair.

CALLONE, *καλλόνη*, from *καλλος*, Beauty. In *Hippocrates περί εὐσχημ.* the Phrase *καλλόνη βίη* signifies the Ornaments of Life; and *καλλόνη*, in *Hesychius*, is expounded by *εὐπρέπεια*, Decency, Decorum.

CALLOPISMUS, *καλλωπισμός*, from *καλλος*, Beauty, and *ὤψ*, Countenance, Aspect, fine Dress, or Furniture, which makes a gay Show. *Hippocrates, Lib. περί ἰσθμ.*

CALLOS, *καλλος*, Beauty.

CALLOSITAS, *τύλωσις*, Callousness. See CALLUS.

CALLOSUM CORPUS. A Part of the Brain thus called. See CEREBRUM.

CALLUS, *τύλος*, *πῶρος*, a Callus, signifies in general any cutaneous, carneous, or osseous Hardness, whether natural, or preternatural; but most frequently it means the Callus generated about the Edges of a Fracture. *Calli*, *πῶροι*, in several Places of *Galen*, signifies the Nodes in the Gout. *Callositas* and *Callus*, *τύλωσις* and *τύλος*, are, in a special Sense, spoken of the Eye-lids, in *Galen, Lib. 7. de C. M. S. Lib. Cap. 7.* and *Scribonius Largus, No. 36. & seq.* For the Callus generated in the Soles of the Feet, or Palms of the Hands, see CLAVUS. *Callus* has also a particular Signification, in which it means the *Callosum Corpus* of the Brain.

Paracelsus, de Ulceribus, gives the Name of *Callus* to an Abscess, or Ulcer, that owes its Original to an acrimonious and arsenical nutritious Juice, which excites a vehement Itching.

CALMET. Antimony. *Rulandus.*

CALOCATANOS. The Gaulish Name in *Marcellus Empiricus, Cap. 20.* for the Wild-poppy.

CALOCHIERNI *Carduus Cretensis*, J. B. *Atractylidi & Onico sylvestri similis*, C. B.

It seems to be only a larger Species of *Atractylis*, and is very common in *Greece* and *Candy*. It was called *Atractylis* from *ἄτρακτος*, a Spindle, because the Women formerly used them for Spindles, and even to this Day the *Greek* Women about *Constantinople* make Spindles of them, as Mr. *Lovell* relates; for in these Parts it grows to a Man's Height, and when it is come to Maturity, the Leaves fall off, and the Stalk grows dry and rigid. The same Gentleman assures us, that it is of a different Species from the common downy *Atractylis*, which also grows in great Plenty in the same Parts. *Raii Hist. Plant.*

CALOMELANOS TURQUETI.

This is a Name given by *Riverius* to a certain purgative Medicine which he frequently prescrib'd in his Practice. It is prepar'd in the following manner:

Take of *Mercurius Dulcis*, one Scruple; and of *Scammony* impregnated with Sulphur, or of Resin of *Jalap*, half a Scruple: Reduce these to a Powder, mix them intimately, and form into Pills, with a Muclage of Gum *Tragacanth*. *Etmul. L. 2. 146.*

CALOMELAS, *καλομέλας*, from *καλός*, good, and *μέλας*, Black, because of its Colour and Virtues, is Mercury well pounded with Sulphur, and reduc'd to a black Substance. *Blancard.*

But CALOMELAS, or Calomelanos in the common Acceptation is *Mercurius Dulcis*, six times sublim'd. See MERCURIUS.

CALONIA, καλονία. A Sort of Myrrh. *Calonian Myrrh*, (καλονία σμύρα) with Oil of Roses, is advised in Suffumigations for the Uterus, in *Hippocrates περί γυναικ. φύσ.*

CALOR, Heat. See **CALEFACIENTIA**.

CALTHA, **CALTHULA**. The same as **CALENDULA**, which see.

CALVA, **CALVARIA**. The same as **CRANIUM**, which see.

CALVATA. The same as **PHALACRA**, which see.

CALUFAL, **CALUFR**, **CALUFAX**. *Indian Oil*. *Johnson. Rulandus.*

CALVITIES, **CALVITIUM**, φαλάκρωσις, φαλάκρωμα, μαδάρωσις, μάδωσις, μαδάρωσις. Baldness, or a want of Hair, particularly on the Sinciput. *Galen, Lib. 1. de C. M. S. L. Cap. 2.* says, that the *Alopecia*, *Area*, *Ophiasis*, and *Tinea*, proceed from a Corruption of the nutritious Humour, but the *Calvities* from a Defect of Humour. *Castellus.*

See **ALOPECIA** and **PILI**.

CALUMENON, καλέμενον, καλεόμενον, called. *Galen*, in his Comment on these Words of *Hippocrates, de Rat. Viſt. in Morb. Acut.* τὸ δὲ ὀξύμελι καλεόμενον πύλον, “the Drink called Oxymel,” says, that when *Hippocrates* adds καλέμενον, “called,” or καλεῖσθαι, “to be called,” to a Name, he intends to signify sometimes, that such an Appellation is far from being used by all the *Greeks*, sometimes that it is improper, and sometimes that it denotes some artificial Thing: But (as he goes on) we cannot imagine, that he meant, that the Word *Oxymel* denoted something artificial; therefore he condemn’d the Word as improper, or taxes it as not sufficiently receiv’d in Use. And perhaps he condemn’d the Word as importing, that the Medicine consisted only of Vinegar and Honey; or implying a Difference in Honey, as if one should say, that some Sorts of Honey were four.

CALUSA. Crystal. *Rulandus. Johnson.*

CALX.

What the *Latins* call *Calx*, is by the *Greeks* term’d τιτανός, or κορία, and, by the *English*, *Lime*. This Word, among Apothecaries, Chymists, and Physicians, denotes whatever is subjected to a certain Operation called *Calcination*, or *chymical Corrosion*. That the Nature of what we call a *Calx* or *Lime* may be the better understood, this Operation must be previously explain’d. All solid Bodies, then, are the Objects of *Calcination*; and the Effect of the Operation so called is a Destruction of the former Connexion and Cohesion of the Particles of these Bodies, together with a Change of Colour, Smell, Taste, and other Qualities of a like Nature, depending upon the entire Texture of the whole Body; so that the Bodies subjected to this Operation are reduc’d to a Powder, or into smaller Portions, or at least become friable, for which Reason *Calcination* is by some called a *chymical Pulverization*. Thus, by *Etmuller*, *Calcination* is defin’d such a Corrosion and Dissolution of compact Bodies into their minutest Parts, whereby Metals and Minerals are reduc’d to *Calx*, and Vegetables to *Ashes*, or at least whereby the Body, whatever it is, becomes friable.

This Operation receives different Names, according to the various Manners in which it is perform’d; and the Effects resulting from these several Methods are no less different, than the Names the Methods themselves have receiv’d. In that Method, which by way of Eminence we commonly call *Calcination*, the combustible Parts of the Bodies are consum’d by being exposed either to the common Fire, or to that of the Sun, whilst such Parts as elude the Action of the Heat are left behind; and this may properly be called *Calcination by actual Fire*. Of this Kind are not only the Calcinations of metallic and other mineral Substances, but also the Incineration observable in the Desflagration of Vegetables for preparing lixivial Salts, and in the Calcination of some Animals, such as Crabs, Moles, and some others. *Calcination* is called *Ustion*, when applied to Hartshorn, Alum, and Brass, and these Substances themselves are distinguish’d by the Epithet *burnt*. This Operation is also called *Toasting*, when applied to Rhubarb, and some other Substances. When Bodies are rarefied, and reduc’d to Powder, by the Reverberation or Reflexion of a Flame from the Sides of a Furnace, *Calcination* is in this Case call’d *Reverberation*; and, when common Salt is calcin’d, *Decrepitation* is the Term which Custom has made expressive of the Thing.

There is another Species of *Calcination*, which is perform’d by an Addition of proper Menstruums, either with or without the Assistance of Fire; and this is properly called *Corrosion*, or *Calcination by potential Fire*. Of this Kind are first the *immersive* and *vaporose Calcinations*, or *Corrosions* of Bodies; when, for Instance, the Body to be calcin’d is either immers’d in its proper Menstruum, as Copper in Spirit of Nitre, or Lead in Vinegar; or when the Body is suspended in a close Vessel, in such a manner, that the Steams arising from the Menstruum may act upon it; when, for Instance, Iron is suspended over *Aqua-fortis*, in order to be calcin’d into Crocus of Mars; or when Copper and Lead are suspended over Vinegar, in order to be converted into Verdegrise, and Cerufs. Of this Kind,

in a particular manner, is that Species of *Calcination*, called *Philosophical Calcination*, or *Calcination without Fire*, when, for Instance, some Parts of Animals, such as the Bones, Horns, and Hoofs, are, in the Distillation of Waters, suspended in the Head of the Still, that, being penetrated by the ascending Vapour, they may become more porous and friable. But in the Shops Bones are not, for the most part, philosophically calcin’d in an Alembic, but are boil’d in Water till they are render’d soft and friable by the Hand. Then having cleansed them, and taken off the blackish exterior Scurf, they are dry’d, and reduc’d to a Powder. The *Cornu cervi philosophicum*, the human *Cranium*, the Teeth of the Boar, and those of the Sea-horse, are thus prepar’d. *Tralles de Remed. Terr.* Secondly, to the *Calcination by potential Fire* belongs that perform’d by *Illination*, when neither the Steam of the Menstruum, nor Immersion in it, are used, but the Body to be calcin’d is only anointed with it, as when Oil or Spirit of Vitriol, or of Sulphur, are laid upon a Plate of Iron, in order to produce a Corrosion. Thirdly, to the same Kind of *Calcination* belongs *Amalgamation*. Fourthly, *Fumigation*. Fifthly, *Detonation*. Sixthly, *Granulation*, which is also called *fusory Calcination*. Seventhly, *Cementation*, or *Stratification*. Eighthly, *Extinction*, or *extingory Calcination*, when for Instance, ignited Crystal is extinguished in common Water, and then reduc’d to a Powder. That Species of *Calcination* which is perform’d by Fire alone, or by means of a dry Menstruum, is called *dry Calcination*; whereas that which is perform’d by means of a liquid Menstruum, is called *moist or humid Calcination*. The learned *Bohnius* calls that Species of *Calcination* perform’d by Fire, with the Addition of a Menstruum, *mix’d Calcination*. The *Calcination* of Minerals perform’d by the Air, or rather in the Air, do not constitute a particular Class, but are to be rank’d among those perform’d by means of a liquid Menstruum; because such a one capable of calcining the Body is lodg’d in the Air, whilst for Instance, the saline corrosive Particles with which it is impregnated, being dissolv’d by its humid Parts, and apply’d to the metallic Body, corrode it, or whilst the Humidity of the Air itself penetrates the saline Parts of the mineral Body, dissolves, and puts them into such a Commotion, that they corrode, and, as it were, calcine the Body in which they reside.

’Tis now obvious, not only what a *Calx* is, but also that the several Species of *Calxes* must vary.

1. According to the Substances or Bodies from which they are obtain’d.

2. According to the Nature of the particular Menstruum used in the Preparation.

3. According to the greater or smaller Degree of Fire apply’d; or according to the greater or smaller Quantities of humid inflammable Parts expel’d, or according as the Parts of the Bodies are more or less divided by the *Calcination*.

’Tis also obvious, that all *Calcinations* of Bodies are perform’d either by taking away the aqueous, oleous, and combustible Substance, connecting the Parts mutually with each other, or by interposing some foreign and heterogeneous Substance, which destroys the Connexion and Cohesion of the Parts. From what has been said, we may also conceive how in some calcin’d Bodies something is lost; that is, those Parts which could be either destroy’d, or exhaled by the Fire; and how in some others there is an Addition made by means of the Menstruum, of which they have retain’d some Parts in the *Calcination*, and consequently may have their Weight increased. From what has been advanc’d we may also comprehend, how some *Calxes*, by the Expulsion of that which they have receiv’d from the Menstruum, may be restor’d to their original Form, and how some others may be so, by a Restitution of what they had lost in the *Calcination*. Of the former Kind are the *Calxes* of Metals produc’d by corrosive Menstruums; of the latter Sort are metallic *Calxes* produc’d by Fire alone. ’Tis an Observation of no small Importance in Medicine, that as Substances calcin’d by Menstruums, or what we call *potential Fire*, retain something of the Menstruum employ’d, by which a Change is induced on their Natures, which are to be judg’d of by the respective Menstruums used; so also Substances calcin’d by actual Fire undergo a certain Change, and assume an acrid, heating, and drying Nature, which they formerly wanted, and by which they are justly said to approach to the Nature of a *Calx*.

It must also be observ’d, that, generally speaking, the Word *Calx*, when placed alone, imports that *Lime* which is most universally used in human Life, and which is prepar’d of Stones, and sometimes the Shells of Shell-fishes burn’d. This Substance is distinguish’d by different Epithets, according to the different States in which it is. Thus we have *Quick-lime*, *Slaked-lime*, and *Washed-lime*.

Quick-lime, by the *Greeks* called κορία, or τιτανός ἀσβεστός, or simply ἀσβεστός, is no more than a calcarious Stone, burn’d into a *Calx* of a white cineritious Colour, of an acrid and pungent Taste, and which, when it has not been too long exposed to the Air, produces an Effervescence, Sinoak, and a considerable

siderable Degree of Heat, when Water is pour'd upon it ; but when it is penetrated by the moist and humid Parts of the Air, it ceases to produce an Effervescence, and becomes a kind of Powder.

Quick-lime may be prepar'd not only of the Stone commonly call'd Lime-stone, but also of Marble, and other Stones of a close Contexture, and hard Nature. In some Parts of *France* it is prepar'd of a sort of Flint, which is capable of being calcin'd. In *Holland*, and some other Countries, where Lime-stone is not to be found, they prepare it of the Sea-shells found on the Shore, which they calcine by the Assistance of a strong and violent Fire. But this Species is less proper, both for the Purposes of Architecture and Medicine, than that which is prepar'd of Stone. The *Americans*, according to *Labat*, prepare a Quick-lime of submarine Plants and Lithophytes ; and, in several Parts of *England*, where a proper Stone cannot be had, Lime is made of Chalk-stones calcin'd.

To the due Preservation of Quick-lime, 'tis absolutely necessary it should be kept from Water, since, when it is saturated by that Fluid, it becomes a pinguious white kind of Mass, of the Consistence of a Poultice, and this is call'd *Slak'd-lime*. Hence 'tis obvious, that the most proper Method of preserving Quick-lime is, to shut it up in close Vessels, lodg'd in a dry Place, that it may not imbibe the moist Particles of the Air, to which it is otherwise greatly dispos'd. The Method of extinguishing Quick-lime for Chirurgical and Medicinal Intentions, is, to add six or eight, and, according to the *London Dispensatory*, twelve Parts of warm Water to one Part of the Quick-lime. Rain Water flakes the Lime better than common Water, and hot Water produces the same Effect better than that which is cold. The Water thus impregnated with the Molecules of the Quick-lime, and filtrated, after standing twenty-four Hours, is call'd a *Solution of Quick-lime*, as also the *Lixivium*, and the *Water of Quick-lime* ; and the pinguious Substance floating on its Surface in form of a Pellicle, is call'd the *Cream or Flower of Quick-lime*. Those who desire a weak Lime-water, after this Filtration pour fresh Water on the remaining Lime, and this they call secondary Lime-water. After this second Solution, if fresh Water is still added to the Lime, it is almost insipid when pour'd off from it. But after several Infusions, the Lime, when again calcin'd, becomes capable of producing a good and rich Lime-water. *Mem. de l'Acad. Roy. des Sciences*, for the Year 1700. In the *Dispensatorium Pharmaceuticum Ratibonense*, the Water distil'd from Oak-leaves seems, without any Reason, to be prescrib'd for preparing Quick-lime Water, since it has no more Virtues for that Purpose than common distil'd Water. *Slak'd-lime*, a second time wash'd, and, as it were, edulcorated by an Affusion of fresh Water, and then dry'd after the Water is pour'd from it, is call'd *Wash'd-lime*, or *Prepar'd-lime*.

As for the several Uses to which Lime, in its different States, is apply'd, by Architects, Builders, Plasterers, Cloth-whiteners, Dyers, Sugar-refiners, Tanners, Cementers of China-ware, and other Mechanics, we pass them over, as being foreign to our Purpose ; only we must observe, that the Chymists seem to have borrow'd the Use of Quick-lime from the Architects, since they use it mix'd either with the White of an Egg, or with Cheese, not only for strengthening their crack'd Glasses, but also for luting the Juncures of Vessels, in order to prevent the Escape of Mineral Spirits in Distillation.

The Nature and constituent Principles of Quick-lime will most advantageously be discover'd by the Observations and Experiments of the Moderns, which will occur as we proceed in pointing out its Medicinal Virtues and Uses. Mean time the antient Accounts of it must not be omitted.

"Quick-lime," then, according to *Pliny*, in the twenty-fourth Chapter of his thirty-sixth Book, "is of the utmost Importance in Physic, but must be chosen fresh-calcin'd, and before any Water has been thrown upon it, in which Case it burns, discusses, draws, and puts a seasonable Stop to spreading Ulcers ; which corrected with Vinegar and Oil of Roses, it induces Cicatrixes ; it also cures Luxations, when mix'd up with Hog's Lard, or liquid Resin, in Honey. This same Composition also contributes to the Cure of the King's-evil." *Dioscorides*, in the ninety-first Chapter of his fifth Book, has these Words concerning Quick-lime : "All Lime, says he, in general, is of a hot, pungent, and caustic Nature, and, consequently, cicatrizes. When mix'd with some other Substances, such as Fat and Oil, it maturates, softens, and dissipates it ; it also cicatrizes Ulcers. It is thought most effectual when fresh-calcin'd, and used before any Water has been pour'd upon it." *Matthiolus*, from *Galen*, recounts its Virtues in the following Words : "Quick-lime is of so caustic a Quality as to induce an Eschar ; immediately after it is extinguish'd, it also induces a kind of Eschar ; but loses much of its caustic Quality, and, consequently, becomes much less proper for that Purpose after it is kept a few Days. In Process of Time it becomes entirely incapable of forming an Eschar, tho' it still continues to heat and dissolve the Flesh. If it is wash'd in Water, it loses its Pungency, and becomes a Powder ; in which State it dries, without ex-

asperating the Part to which it is apply'd. If it is twice, thrice, or oftener wash'd, it entirely loses its Pungency, and dries powerfully, without exasperating." *Paulus Aegineta*, in the third Chapter of his seventh Book, informs us, "That when it is wash'd in Sea-water, it becomes a strong and efficacious Discutient." Lime seems, by the Antients, to have been only apply'd externally, in Cases where an acrid, corroding, drying, and discutient Topic was thought requisite ; for, when internally us'd, it was esteem'd a Poison, which violently corroded the Stomach and Intestines ; and, as Correctors to its virulent and poisonous Qualities, emollient and viscid Substances were prescrib'd, such as Juice of Mallows, and pinguious Substances proper for obtunding Acrimony, such as Decoctions of Linseed, Sea-grape, and Rice, together with Milk, Hydromel, pinguious Broths, and proper Juices. *Dioscorides*, Lib. 6. Cap. 91. and *Paulus Aegineta*, Lib. 5. Cap. 61. But the Moderns use Quick-lime as a Medicine, both externally and internally. However, before I mention the several Purposes to which they apply it, or specify the various Medicinal Uses of *Slak'd-lime*, of the Water or Lixivium of Quick-lime, of the Cream of Quick-lime, and of wash'd Lime, I shall first inquire what may be discover'd concerning the Natures and Properties of each, from the Experiments made upon them by the Curious.

Quick-lime, then, by an Addition of Water, becomes so intensely hot, as to set combustible Bodies, that touch it, on Fire. Among other Circumstances proving this Property of Quick-lime, none is more remarkable than the burning of a Ship loaded with this Commodity, when the Water, in consequence of some Accident, had Access to it. Quick-lime, however, sometimes remains in cold Water for a whole Day, without exciting any Heat ; but immediately exerts its burning Qualities, upon the Addition of boiling Water. *Du Hamel*, *Hist. Quick-lime*, upon an Addition of Acids, produces an Effervescence, and diffuses urinous Vapours. *Eph. N. C. D.* 1. a. 6. Upon an Addition of Oil, it neither produces an Effervescence, nor acquires any Degree of Heat ; neither is it slak'd by Spirit of Wine. *Hist. Acad. R. Sc.* But if Spirit of Wine is distil'd from Quick-lime, it assumes an alkaline Quality, *Eph. N. C. D.* 1. a. 6. Quick-lime, thrown into human Urine, raises a highly acrid and igneous Vapour ; and, when distil'd with the same, yields a highly acrid, volatile, and igneous Liquor, like that obtain'd from it when distil'd with Flowers of Sal Ammoniac. When mix'd with Pot-ash, by the Affusion of Water, it affords a highly acrid, alkaline, and igneous Salt. *Willis* made the following Analysis of Quick lime : He put about a Pound and an half of it into a large Cucurbit ; then adding Water to it, he adapted the Head to a large Receiver ; upon which, in the Space of five Minutes, the Water and Lime began to swell, and produce an Effervescence ; at the same time the Steam and Smoak rais'd heated all the Vessels to such a Degree, that they could scarce be touch'd. There came over into the Receiver six Ounces of a limpid Water, which was not in the least acrid, but had a sweetish styptic Taste. He boil'd the Powder remaining in the Cucurbit in common Water, and, whilst he was evaporating the Lixivium, made of it, over a gentle Fire, there was form'd, on the Surface of the Liquor, a white crustaceous Pellicle, which was also of a sweetish Taste. When this Pellicle was taken off, a fresh one succeeded it ; and, when the Liquor was totally exhal'd, nothing of an acrid or saline Nature remain'd in the Bottom of the Vessel. *Willis*, *Diatriba de Fermentatione*, Cap. 10. So great is the Acrimony of Quick-lime, that when apply'd externally to the Skin of any Animal which is hot and moist, it forms an Eschar upon it ; and, when exhibited internally, it acts like a Caustic. For this Reason it is a Substance very proper for killing or banishing Insects. If it is reduc'd to a Powder, mix'd with Sugar, and swallow'd by Mice, it infallibly kills them. For these Reasons it is, by the Moderns, as well as the Antients, class'd among the acrid Poisons. *Forest. Obs. Med. L.* 30. *Obs. 8. schol. Kircheri. Mund. Subterr. T.* 2. *Lanzon. T.* 1. *Vateri Phys. Exper. & Joel. T.* 2. *Borhaave*, in his *Instit. Med. Sect.* 1133, ranks it among those Poisons, which by constricting, incrassating, obstructing, and drying, kill either quickly or slowly, according to their respective Virulence ; and to prevent the fatal Effects of which, Vomits, Purges, diluting Substances, spirituous Acids, spirituous and oleous Alcalis, and all saponaceous Substances, are proper. Accordingly, in *Eph. N. C. D.* 3. a. 2. a. we have an Account of a Woman who eat two Apples, inadvertently put into a Bag in which there had formerly been Quick-lime, some of which adhered to the Apples. Soon after she eat them, she was afflicted with a preternatural Heat of her Throat and Oesophagus, an Oppression of her Stomach and Præcordia, and an insatiable Thirst. These Symptoms were follow'd by a Swelling of the Belly, an universal Swent, and Convulsions. In *Eph. N. C. Vol.* 2. o. 86. we have an Account of a young Man, who, upon pouring Water upon Quick-lime, was so strongly affected by the ascending Vapour, that he was seiz'd with an Oppression of the Præcordia, and a violent and most frequent Coughing and Sneezing, which lasted for almost twelve Hours without Intermission ; by which Accident he

was weaken'd to such a Degree, that when he walk'd abroad in the Sun, or used any Exercise sufficient to excite a Diaphoresis, the Sneezing return'd, and continu'd for some Hours. The Stones in the Lungs, mention'd in *Eph. N. C. D.* 1. a. 3. o. 16. and which are there said to be generated by frequently drawing in the Dust of *Quick-lime* with the Breath, by no means prove its poisonous Quality, but only that it is capable of being divided into so fine a Powder, as to be imperceptibly drawn in with the Air, and form'd into Concretions in the Lungs.

The Water of *Quick-lime* is of an acrid, styptic, and, at the same time, a somewhat sweetish Taste. A white, and somewhat hard, Pellicle or Crust is soon produc'd on its Surface; and if this Pellicle is either drawn aside, or totally taken off, a fresh Pellicle succeeds it. When it has stood thus for a whole Year, in a Vessel cover'd with Paper, if the Pellicle be broke every two or three Days, and sunk to the Bottom, if, about the Middle of the Year, there is a new Addition made of common Water distil'd, if the Materials are now-and-then agitated with a small Stick, and if, at the Year's End, the whole Water is evaporated, it leaves a very dry *Calx* or *Lime*, about an eighth Part heavier than the *Quick-lime* originally employ'd in making the Lixivium. *Eph. N. C. D.* 1. a. 3. *Hoffman* says, that *Quick-lime-water* evaporates entirely over a gentle Fire, without leaving any thing behind. *Quick-lime-water* neither produces an Effervescence, nor coagulates, with Acids; for tho' it runs into a bitterish neutral Salt, yet it is not coagulated. In particular, when Spirit of Salt is added to Water of *Quick-lime*, there is no Effervescence produc'd, and yet the Acid of the Salt is chang'd into a neutral Salt, which, after Evaporation, remains very white in the Bottom of the Glass, and has exactly the same Appearance with Spume of Nitre in the Form of *small Flakes*. This Powder is of a somewhat bitterish Taste, but of a fix'd Nature; for it neither fuses in the Fire, nor does it easily yield its acid Spirit, unless by an Addition of Oil of Vitriol, which, by attacking the calcarious Principle, and intimately uniting itself with it, disentangles the acid Spirit of the Salt from its Embraces. When Water of *Quick-lime* was added in so large a Quantity to the best Spirit of Nitre, as that the Spirit was entirely saturated with it, the Mixture, when evaporated, left a certain thick, viscid, and yellowish Gum, which could not be dried, but dissolved in the Air, and which had a saline and very pungent Taste. *Quick-lime-water*, prepar'd of *Quick-lime* before calcin'd with common Sulphur, that it might receive an Addition of Weight from this Circumstance, when it was added to the best Spirit of Nitre in such a Quantity as to saturate it, the Mixture, upon Evaporation, left in the Bottom of the Vessel a yellowish-white Salt; which being dissolv'd in a digestive Heat, with several repeated Affusions of distil'd Water, and again evaporated, left a highly pungent Salt, resembling small square Stones, wrap'd up, as it were, in a small Portion of yellow Gum or Honey; and when a little distil'd common Water was added to this Salt, and the Mixture was agitated, the Whole of this Honey-like Substance was dissolv'd, the small Concretions of Salt remaining entire, white, pellucid, and beautiful as small Diamonds. *Eph. N. C. L. C.* Water of *Quick-lime* assumed a milky Colour, upon an Addition of Spirit of Sal Ammoniac, as also by an Affusion of Oil of Tartar per Deliquium. And since, by adding Water of *Quick-lime* to Urine, or to Sal Ammoniac, an urinous Spirit is perceiv'd to exhale, it may, according to *Tournefort*, serve us in inquiring whether there is any Sal Ammoniac conceal'd and wrap'd up in any particular Plant. *Quick-lime-water*, saturated with an Infusion of Galls, becomes thick, assumes a brownish-grey Colour, and on its Surface appears a remarkable black Spot, like a Drop of Ink. The Water of *Quick-lime*, mix'd with a Solution of corrosive Sublimate Mercury, becomes yellow or reddish; when mix'd with common Spirit of Wine, it becomes somewhat warm; and, by an Addition of the Solution of Sublimate, the Whole is chang'd into a Gold-colour. *Du Hamel Hist.* It ferments with all Syrups, and the Admixture of every acid Liquor renders it turbid. If it is mix'd with Milk, it prevents its Coagulation, which is contrary to what *Etmuller* asserts in *Commentar. de Bononiensi Artium Instituto*. In the Memoirs of the Royal Academy for the Year 1700. we are told, that Oxen which had unluckily drank *Quick-lime-water*, died soon after; and that the Wines which had been sophisticated with it, prov'd prejudicial to those who drank them, by their excessive and immoderate Heat.

Cream or Cremor of *Quick-lime* is an insipid Powder, which is with great Difficulty dissolv'd in Water. *Mem. Ac. R. S.* for the Year 1724.

Slak'd-lime is of a less acrimonious Nature than *Quick-lime*, and produces a less considerable Effervescence with Acids. Builders of Walls, and Bricklayers, however, find it to be in some measure acid, since it renders their Hands rough, and sometimes exulcerates them, but carries off all itchy Eruptions which happen to appear upon them. *Ramazini*. The Vapour arising from the Walls of Houses newly cover'd over with *Quick-lime*, proves of a very noxious Quality to those who continue for any considerable Time, or sleep, in them, during the Night. Daily Experience, and numberless uncontested

Facts, prove the Truth of this. The Symptoms which generally seize those who live in new-plaster'd Houses, are principally Fevers, violent and long-contin'd Sneezings, a Sensation of Suffocation about the Fauces, an Infarction of the Breast, with a slow Fever. *Hoffman Med. Rat. Syst. Boerhaave*, in *Aphor.* 1060. observes, that a Palsy may be produc'd by the Vapour of *Slak'd-lime*; and, in *Instit. Med.* he ranks it in the same Class of Poisons with *Quick-lime*.

Wash'd-lime is an unactive Body, or a *Caput Mortuum* destitute of Acrimony. When this Substance is again calcin'd in a Crucible over a strong Fire, and common Water is added to it, it produces neither Effervescence nor Ebullition, but always throws up a Pellicle on its Surface, which when remov'd, a fresh one appears for a considerable Number of Times. Upon an Addition of the Solution of any fix'd Alkali, a Lixivium, for Instance, of Pot-ash, it throws up no remarkable Pellicle; but a faint Appearance, as it were, of Fat, is observed to float upon the Surface here-and-there. By the Addition of Spirit of Nitre, it excites a remarkable and noisy Effervescence, with a Number of large Bubbles, and a sensible Heat, which penetrates the Glass, and strongly affects the Hand which is apply'd to it; and a thick white Pellicle, of a sweetish Taste, floats on its Surface. A Solution of *Wash'd-lime*, a second time calcin'd, made with Spirit of Salt, filtrated, and distil'd from a Retort, yielded a simple insipid Phlegm, and the *Caput Mortuum* which remain'd was white, light, and swel'd, like burn'd Alum; it excited a sensible, and, as it were, burning Heat on the Tongue; and had a nauseous, and somewhat bitterish Taste. When common Water was added to this Substance, so strong a Heat was produc'd, that the Hand was not able to bear it; the whole Glass became intensely warm, large Bubbles appear'd in the Liquor, and the Noise of the Effervescence was sufficiently audible. *Etmuller*.

From what has been said, we may reasonably infer, that *Quick-lime* possesses some of the Qualities peculiar to alkaline Salts. *Tournefort* suspects, that somewhat of a vitriolic Acid is lodg'd in it. *Helmont* affirms, that there are two Salts in *Quick-lime*; the one a lixivial Alkali, and the other an Acid; and, from a Dissolution of these two by Water, and their consequent mutual Action on each other, he accounts not only for their Accension, but also, whilst they destroy each other, for their Coagulation. Hence he endeavours to deduce the Use of *Quick-lime* in Architecture.

Boecler, L. 1. Part 3. informs us, from *Herman*, that *Quick-lime* contains a large Quantity of an alkaline Salt, and very little of an acid one; but that they are both volatile and corrosive, and mix'd with a large Quantity of Earth. *Etmuller* is of Opinion, that *Quick-lime* contains both an Acid and an Alkali, join'd to earthy Particles. That it contains an Acid, he proves from the following Considerations: First, because newly-prepar'd Water of *Quick-lime* destroys the volatile Salts on which it is pour'd, fixes them, and transforms them, with itself, into an earthy Substance. Secondly, because the Water of *Quick-lime* is render'd turbid, and precipitated by an Infusion of the lixivial Salt of Tartar, since the earthy Particles are extruded, and sent to the Bottom, from the Acid lodg'd in the Lime-water, by means of the Alkali of the Tartar, which is readily absorb'd by the Acid. His third Argument, which is, that Milk is coagulated by Water of *Quick-lime*, is inconclusive, since, upon trying the Experiment, no such Effect is produc'd. He proves that *Quick-lime* contains an Alkali, from the following Topics: First, because the Water of a Solution of *Quick-lime* dissolves and extracts sulphureous Substances, common Sulphur, and Sulphur of Antimony, in the same manner that Lixiviums of alkaline Salts usually do. Secondly, because, when *Quick-lime* is added to Sal Ammoniac, it permits its volatile Salt and Spirits to come forth, in the same manner as when alkaline Salts are added to it. Thirdly, because the Water of *Quick-lime* restores the Colour to an Infusion of nephritic Wood, after it has been destroy'd by Vinegar. Fourthly, because it produces, tho' slowly, a Precipitation in the Solution of Mercury Sublimate, of the Colour of Minium. Hence he infers, that the Water of *Quick-lime* contains both an acid and an alkaline Salt dissolv'd; and, consequently, that it is somewhat of the Nature of Sal Ammoniac. But he asserts, that the saline and acid Particles of *Quick-lime* partake of the Nature of fix'd Alkalies, and produce all the Effects ascribed to them. According to *Hoffman*, "There are two Principles lodg'd in *Quick-lime*, the one very fix'd and earthy, the other very subtil, penetrating, volatile, and, as it were, of a fiery Nature. So long as these are join'd and connected with each other, they are so far from being disunited by the strongest Degree of Fire, that they are rather more firmly join'd together by it. But when, by the Assistance of Water, and more particularly by boiling, the volatile Principle is separated from the more fix'd and earthy Part, it discovers its volatile Nature by this Circumstance, that by means of a gentle Heat it is wholly dissipated in the Air. Hence Water of *Quick-lime*, tho' of a very acrid Taste, evaporates wholly, without leaving so much as one Particle

" of

“ of a fix’d Matter. But if saturated Water of Quick-lime
 “ is boil’d with well-calcin’d Salt of Tartar; it acquires so
 “ caustic, corrosive, and penetrating a Quality, that it is not
 “ only very hot and pungent on the Tongue, but may also be
 “ used for a potential Caustic, since it eats and consumes the
 “ Flesh. Of such a Salt, with Spirit of Wine, is prepared a
 “ highly acrid Tincture, commonly call’d the Tincture of Quick-
 “ lime, or of Salt of Tartar; and this Tincture is of uncommon
 “ Efficacy in provoking Urine. A Lixivium is also prepar’d in
 “ this manner from Quick-lime and Salt of Tartar, which is high-
 “ ly proper for dissolving and extracting Tinctures from com-
 “ mon Sulphur or Antimony. Spirit of Sal Ammoniac also, pre-
 “ par’d with Quick-lime, in its penetrating Smell, acrimonious
 “ Taste, and even in its Volatility, far surpasses that prepared
 “ of Pot-ash and Sal Ammoniac. All these Circumstances
 “ evidently demonstrate, that there is in burn’d Calxes not
 “ a saline Principle, but a highly subtil volatile one, which is,
 “ nevertheless, of a terreo-igneous Nature, and which is capa-
 “ ble of adding the highest Acrimony, and also a caustic
 “ Virtue, to fix’d as well as volatile urinous Salts; of dissolving
 “ oleous and pinguious Substances; and of fixing and retaining
 “ volatile Substances, especially such as are of an acid Nature.”
Homburg found experimentally, that Mercury dissolv’d with
 Spirit of Nitre, and by reiterated Distillations to Dryness, united
 in a hard Mass to its solvent Acid, was by the Addition of
 Quick-lime reviv’d, when subjected to Distillation by a large
 Fire, the acid Spirits being thus separated, but render’d weaker.
 These Circumstances seem to point out the alkaline Nature of
 Quick-lime, since it join’d itself to an Acid, and thus freed
 the Mercury from its Solvent. He then had an Inclination to
 try whether, by several Lixiviums, the Salt could be extracted
 from the Lime; but the Experiments were made in vain, nor
 after the Evaporation was there any thing found, besides the
 terrestrial and insipid Crusts, which generally are left after the
 Evaporation of Lime-water. *Du Hamel Hist.* Hence he
 classes Quick-lime among the earthy Alcalis; and, by Experi-
 ments made with Spirits of Salt and Nitre, he found that Quick-
 lime was not of a more alkaline Nature than Slak’d-lime, since
 both of them requir’d almost an equal Quantity of an Acid for
 their Dissolution; only with this Difference, that the Quick-
 lime produc’d a greater Effervescence than that which was
 slak’d. *Mem. Acad. R. Sc. A. 1700.* But Quick-lime does
 not seem to be a simple earthy Substance, of an absorbent or
 alkaline Nature; for it has nothing in common with absorbent
 or alkaline Earths, except that it produces an Effervescence with
 Acids, whereas it has many Properties in common with alkaline
 Salts. The caustic Acrimony of Quick-lime is not to be found
 in an absorbent Earth, which is insipid. Quick-lime resolves
 resinous Substances, just as an alkaline Salt does. Sulphur, when
 boil’d in Quick-lime-water, is dissolv’d, and yields a red Tincture,
 like that which arises from fix’d alkaline Salts with Sulphur. The
 filtrated Liquor, by an Addition of an acid Liquor, yields a
 precipitated Magistery, like that commonly form’d in preparing
 Milk of Sulphur. Quick-lime promotes the Fusion of Sand,
 triturated Flint, and Crystal, for making Glass, just as fix’d
 alkaline Salts do. But absorbent Earths, such as Chalk, pro-
 duce no such Effect, unless they are previously reduced to a
 Calx. Quick-lime tinges Syrup of Violets of a green Colour,
 as fix’d alkaline Salts do. With a Solution of corrosive Subli-
 mate Mercury it yields a yellow Precipitate, as fix’d alkaline
 Salts do; only with this Difference, that the Precipitate pro-
 duc’d by the fix’d alkaline Salts is of an Orange, and that pro-
 duc’d by the Quick-lime of a Lemon-colour; because some of
 the white earthy Particles of the Quick-lime are associated with
 the Precipitate. Quick-lime, as well as fix’d alkaline Salts, ab-
 sorbs the Acid of the Sea-salt in Sal Ammoniac, and by that
 means sets the volatile urinous Salt at Liberty, which simple
 absorbent Earths do not. The now enumerated Properties of
 Quick-lime are not found in Lime-stone before Calcination.
 They who deny that there is a fix’d alkaline Salt in Quick-lime,
 alleging that by Elixivation the Salt cannot be extracted from
 it, seem to prove nothing at all, because an alkaline Salt, by
 the Force of Fire united to the Sand in Glass, cannot be drawn
 from it by Elixivation, tho’ ’tis certain, that such a Salt is really
 in it. As to that Question, What is the Origin of the alkaline
 Salt in Quick-lime? I answer, that it is form’d in it, first, of
 the aluminous, vitriolic, or nitrous Acid contain’d in the
 Lime-stone; and, secondly, of the Acid of the Wood or Coal
 used in Calcination. *Geoffroy, in Mem. Acad. R. Sc. A. 1720.*
 The alkaline Nature of Quick-lime seems to be prov’d by that
 Property of Quick-lime Water, by which it serves to precipitate
 Metals, dissolv’d by their proper acid Menstruums. *Mem.*
Acad. R. Sc. A. 1711. The alkaline Nature of Quick-lime is
 also prov’d from that Species of sympathetic Ink, in which it is
 made an Ingredient. *Le Fevre* thinks, that from the alkaline
 Nature of Lime we may deduce the Origin of that alkaline
 Salt, which is wrap’d up in some mineral Waters; since, in the
 Earth where such Waters abound, the Sulphur and the calcarious
 Earth concur, and the Acid of the Sulphur, being disengaged

from the Water, acts upon the Alkali of the Lime; and joins
 itself to it; just as the like Salt is produc’d from common Sul-
 phur and Quick-lime-water, by boiling them together, and
 then filtrating and evaporating the Solution. *Hist. Acad. R. Sc.*
A. 1730. Thus, I think, it can hardly be deny’d, that both
 Quick and Slak’d-lime are of an alkaline Nature, on account of
 the Effects produc’d by them. In the mean time, I can scarce
 believe, that Quick-lime agrees in every respect with an alkaline
 Salt; for according to *Stahl*, in his *Specimen Becher*, “ Quick-
 “ lime differs from an alkaline Salt, first, in that it is not fus’d
 “ by Fire; secondly, when dissolv’d in Water, it evidently
 “ evaporates in the Air; thirdly, it has no remarkable Taste,
 “ much less a caustic one; fourthly, it does not coagulate Acids
 “ into a dry or crystalline, but into a kind of liquid Consistence;
 “ fifthly, Quick-lime itself never arrives at a liquid Consistence;
 “ sixthly, with Sulphur, it runs into a dry Consistence resembling
 “ Crystals, which an Alkali does not; seventhly, with Sand it is
 “ form’d into hard Concretions; eighthly, it is also form’d into hard
 “ Concretions, with Mucuses, Whites of Eggs, and Curd of Milk,
 “ all which Substances are rather colligated by alkaline Salts;
 “ ninthly, it fixes Sulphurs more. It agrees with an alkaline Salt in
 “ these respects: First, that it saturates Acids; secondly, detains
 “ them strongly; thirdly, precipitates other Substances dissolv’d by
 “ them; fourthly, changes them, tho’ not by the same Property
 “ an Alkali does; fifthly, it dissolves Sulphur and pinguious Sub-
 “ stances, and much more such as are mucid.” Among all
 those who have contended for a Salt, of whatever kind, in
 Quick-lime, none, so far as I know, ever exhibited it to the
 View, before the celebrated *Du Fay*, tho’ all of them suspected
 the Presence of a Salt, from the Effects it produc’d. He was
 the first who found a Salt in Quick-lime, and that in the Pel-
 licle, or Cream, floating on a Solution of it. This Salt was
 indeed very impure, and sheath’d up in a great deal of Earth;
 but, by a second Process, he shew’d it separated from the Earth,
 and more pure than it formerly was. He took eight or ten
 Pounds of Quick-lime, in Pieces as large as one’s Fist; he laid
 them *Stratum super Stratum* on a Furnace, with live Coals;
 and when the Pieces were red-hot, he took them off, one by
 one, and extinguish’d them in Rain-water, filtrated and warm;
 for, if common Water is us’d, then less Salt is obtain’d. Then
 he suffer’d the Water, with the Lime extinguish’d in it, to boil
 for about a Quarter of an Hour; and whilst the Water was as
 yet boiling, he pour’d it off by Inclination into some earthen
 Vessels. After he had suffer’d it to settle for some time, he
 pour’d it off again by Inclination into other Vessels; taking
 care that no Particles of the Lime itself should be carry’d along
 with it. This Water, upon Evaporation, afforded the Salt of
 Quick-lime, which is not very pungent, and cannot be felt,
 unless a Spoonful of it is put into the Mouth, and tasted for
 some time; and when dissolv’d by boiling it in a large Quantity
 of common Water, or a proportionably smaller one of Rain-
 water, and then filtrated, and evaporated, it becomes purer,
 but is not white. This Salt, before Depuration, produces a
 considerable Effervescence with Acids, and more particularly
 Oil of Vitriol; but, when depurated, it neither produces an
 Effervescence with Acids nor Alcalis: So that it seems to belong
 to the Class of *neutral* or *middle Salts*. When lodg’d in a
 Cellar, upon a Piece of Marble, it dissolves after a considerable
 Time, if it is impure, into a Liquor of a yellowish Colour,
 somewhat inclin’d to red; but much sooner, if it is pure.
 Tho’ this Salt is soon dissolv’d in a Cellar, yet it has this re-
 markable Property, that it cannot be dissolv’d except in a large
 Quantity of Water. Another Method of extracting the Salt
 from Quick-lime, us’d by the same Mr. *Du Fay*, is this: Quick-
 lime, left long in the open Air, and, consequently, ex-
 tinguish’d by its Humidity, is distil’d to Dryness, from a coated
 Glass Retort. The distil’d Liquor is somewhat reddish, clear,
 and not very acid. It scarcely produces any Effervescence,
 either with Acids or Alcalis. It becomes very little red with
 Spirit of Nitre. It is pour’d upon the powder-like Matter of
 the Quick-lime left in the Retort, with which it produces an
 Effervescence, and a violent Heat. Then ’tis to be digest’d,
 filtrated, and evaporated. This distil’d Liquor, if pour’d upon
 Quick-lime, or upon Lime extinguish’d in the Air, also ex-
 tracts the Salt from it, but in a smaller Quantity. The Salt
 now describ’d is not of a volatile Nature, but, on the con-
 trary, very much fix’d in the Fire, since it did not fly off in
 that large Fire in which the Lime-stones were calcin’d. But
 lest it should be pretended, that the Salt obtain’d in this Case
 was owing, first, to the repeated Calcination with Wood; or,
 secondly, to the Air, to whose Humidity it had been long ex-
 posed, for the sake of being extinguish’d; or, thirdly, to the
 Water employ’d, which might have possibly abounded with
 Salts, the Experiment was made with Quick-lime, extin-
 guish’d in distil’d River-water, and the clear Solution being
 pour’d off by Inclination, and evaporated to Dryness, the Salt
 extracted was like the former. *Mem. Acad. R. Sc. A. 1724.*
 We have seen then, that Quick-lime is possess’d of the Proper-
 ties of an alkaline Salt; afterwards, we have seen, that a Salt of
 a neutral

a neutral or saline Nature, or what is commonly call'd a *Sal Salsum*, was extracted from it. It seems very probable, that those Effects of Quick-lime, which discover it to be of the Nature of an alkaline Salt, are owing to this, that its Salt has a great Quantity of an earthy, absorbent, and alkaline Matter join'd with it. Quick-lime raises a more violent Effervescence with Acids, than Slak'd-lime. This Phenomenon *Hamberger* accounts for from the Particles of Fire which enter the Lime-stone during Calcination, and adhere firmly in its Pores, being lock'd up, and retain'd therein, by the contracting Cold; and whilst these are expel'd by the Acids, which penetrate the Lime, the above-mention'd Motion of Effervescence is excited. *Mem. de l'Acad. Roy. des Sciences, A. 1700.*

Others also derive its Effervescence, Heat, and Fire, from Water being pour'd upon the Quick-lime, which expels the latent Fire with a kind of Impetus. See *Vitruv. L. 2. C. 5. Willis. Ferm. and Du Hamel. Phil. Tom. 4.* But, then, that Fire should be united, and, as it were, concreted with Bodies during Calcination, seems a precarious Hypothesis, till the Thing shall be more clearly demonstrated. Mean time, it is certain, that Quick-lime, the fiercer and the longer continu'd the Fire is, in which it is calcin'd, excites so much the more Heat, that is, actual Fire, in cold Water; in like manner as alkaline fix'd Salts, which, the longer and more strongly they have been subjected to the Fire, the more Heat they produce when thrown into Water. *Boerhaave's Chym.* 'Tis disputed, whether the Properties by which Quick-lime differs from Slak'd, ought to be ascrib'd to the changing Action of the Fire. *Helmont* was of this Opinion; for he expresses himself thus: "Stones, which may be calcin'd, acquire the Nature of Salt, and the Acrimony of Lime. But that very Thing is a Transmutation into a new Generation, promoted by Fire; but not an Extraction, Education, or Separation of the Thing contain'd. But this Discovery the Chymists owe to me." Of the Presence of a most acrid Salt in Quick-lime, if we may believe *Stentzelius de Venenis*, no one will doubt, who has ever so small an Insight into its Nature and Operation; for it is prepar'd of Lime-stone, containing in it a most strong acid Salt, which is calcin'd by the Force and Power of the Fire; divided into smaller Pieces, becomes a friable Substance; and is transmuted into an acrid Salt, consisting of the smallest Points and Spiculae, and which comes nearest to the Nature of an alkaline Salt. Quick-lime, therefore, affects the Body precisely in the same manner as the more acrid Alcalis do; since, by the Sharpness and Stiffness of its Particles, it excoriates and corrodes the Solids, dissolves and colliquates the Fluids, and, by the too great Increase of Attrition, brings on Putrefaction and Death, &c. *Stentzel. de Venenis, Lib. 2.*

Whether the Motion among the Parts of the Quick-lime render'd dry, and, as it were, greedy of Moisture, by the Fire, arises from the Re-action of the Æther, or rarefy'd Air, at the Moment when an Acid, or Water, enters its Pores, of which the Fire produces a great Number; or whether that Virtue, by which Quick-lime differs from that which is slak'd, ought to be ascrib'd to the Salt of the former, which either is not in the latter, or is there weaken'd, or in a smaller Quantity, are Points not to be determin'd without a larger Number of Experiments than have hitherto been made, with a Design to ascertain the Truth in this Matter.

In Surgery Quick-lime is of Use, where a caustic burning Force is requir'd. *Celsus, Lib. 5. Cap. 6 and 7.* reckons it among the corrosive and burning Remedies. For Instance, in making the Separation of a Sphacelus, Quick-lime, reduc'd to a fine Powder, may be sprinkled on the Part; or it may be reduced to a Lixivium, by Deliquium, in a subterraneous Place, together with Pot-ash, and, after Filtration, apply'd. *Boerb. Aphor. 462. and Mat. Med.* It is also used in making caustic or septic Stones. Thus, three Parts of Quick-lime, and two Parts of Pot-ash, are powdered, and mixed together, and the Oil of these, by Deliquium, is evaporated to Dryness, which must be exposed to a strong Heat in a Crucible till it fuses, and then cast into Molds. *Boerb. Mat. Med. and Chym. Vol. 2.* In the *Paris and Bruffels Dispensatories*, and *Lemery's Chymistry*, two Parts of Pot-ash are taken, to one Part of Quick-lime. In the *Pharmacop. Aug.* under the Title of *Potential Caustery*, equal Parts of each are taken. *Charas* teaches the same Method; where, at the same time, he intimates, that Salt of Tartar, or the lixivial Salt of Vegetables, may be employ'd for the same Purpose. In the *Edinburgh Dispensatory* the Proportion is the same; but it is directed, that the Pot-ash be sprinkled over the Quick-lime, powdered, and well calcin'd in a Crucible; and, afterwards, that they be kept in a Wind-furnace till the Salt becomes fluid; let a sufficient Quantity of Spring-water be pour'd on the Mass, receiv'd in an Iron Vessel; so let it be macerated for some Days, filtrated, and inspissated to the Hardness of a Stone. *Alustanus (Cbir. Tom. 4.)* gives the following Directions for carrying on the Process:

Take of Soap-lees, two Pounds; of Quick-lime, one Pound: To these pour boiling Water; let them be united together; when the Whole is clear, pour it into an Iron Pan; add half an Ounce of Sal Ammoniac; and, by boiling, reduce it to the Hardness of a Stone.

The Potential Caustery of *Felix Platerus* is prepar'd by a somewhat shorter, and less tedious Process; for it is no more than an highly acrid Lixivium of the Soap-boilers, prepar'd with Quick-lime, and boil'd in an Iron Pan, till its Humidity is so much evaporated, that it begins to become dry. Then it is to be remov'd from the Fire; and, the Mass beginning now to grow solid, is to be taken out with an Iron Spatula, and kept in a Glass Vessel, close stop'd, in a hot Place.

The Method of applying it is this: An adhesive Plaster, with a sufficiently large Perforation in the Middle, is laid upon the Part to be cauteriz'd. Then the Caustery is laid upon the perforated Part of the Plaster, and another Plaster apply'd over it, that it may not dissolve by the Moisture of the Air. It is to remain on the Part for half an Hour, or three Quarters, after which the Skin, how thick soever, will be burn'd and mortify'd, without any Pain. The Falling off of the Eschar is to be promoted by the Unguentum Rosatum, or any other Digestive. It is, by others, call'd Corrosive, Caustic, or Infernal Stone. *Fuller* mightily extols an Epithem, which is made of Quick-lime, reduc'd to such a Consistence, with a sufficient Quantity of liquid Honey, as to be spread upon dress'd Leather, in form of an Unguent; to be apply'd to the Part affected, and, as often as it dries, to be renew'd. He says it is an extraordinary and approv'd Remedy against Scorbutic and Rheumatic Pains, and that he never yet knew it try'd in the true Gout; but is of Opinion, that it would be very efficacious. It is also good against Chilblains. In the *Leyden Dispensatory* the Unguentum Calcis is compos'd of Quick-lime, with the Addition of emollient and drying Ingredients. The same Composition is in the *Antidot. Bon.* where it is not Quick-lime, but Lime ten times wash'd, which is prescrib'd. It is call'd *Unguentum de Calce Compositum Jo. de Vigo*; and is commended for Burns of any kind, Itchings, Erysipelas, and old Ulcers of the Legs. For the same Purpose, but with less Effect, is us'd the *Unguentum de Calce Simplex*, (*ibid.*) which is compos'd of Quick-lime seven times wash'd with Rose-water, and which is then to be reduced to the Form of a Liniement, with Oil of unripe Olives, or Oil of Roses, and the Whites of two Eggs, with a sufficient Quantity of Wax. In *Lemery's Pharm.* *Mynsicht's* Ointment of Quick-lime is compos'd of Quick-lime, Orpiment, Root of Florentine Orris, Sulphur, Nitre, a Lixivium of Bean-stalks, and Oil of Spike. This is recommended for a good Depilatory. *Valleri* proposes, for this Intention, Quick-lime alone, and Arsenic boil'd with Water. *Joel* recommends equal Parts of Quick-lime and Orpiment, powder'd, and boil'd together, in an acrid Lixivium, to the Consistence of a Poultice. The Depilatory of the *Italians* is prepar'd of four Ounces of Quick-lime, of Orpiment, Litharge, and Starch, each an Ounce, in a sufficient Quantity of Water, to which is sometimes added an equal Quantity of Salt of Tartar and Soap, and a sufficient Quantity of Oil of Elder, according to *Fick*. *Mynsicht's* Pills of Quick-lime, in *Lemery's Pharm.* to be put into hollow Teeth, that ake, are thus prepar'd:

Take half an Ounce of Quick-lime; of Wheaten-meal, long Pepper, Pomegranate-bark, and Galls, of each two Drams; of Henbane-seed, Cloves, Opium, and burn'd Alum, each four Scruples: Mix, and, with the Extraet of Pellitory of Spain, make a Mass, of which afterwards let oblong Pills be made, with Oil of Cretan Origanum and Camphire. *Mynsicht.*

Tilingius's Pills of Quick-lime, for the same Uses, are made of Quick-lime, long Pepper, Henbane, and Opium, with Juice of the Root of Pellitory of Spain, according to *Fick*. The most familiar Masticatory of the *Indians* is Quick-lime, with the Betel-leaf, and the Fruit of the Indian Nut; instead of which, the most common Masticatory in *America* is of Tobacco-leaves and Quick-lime, according to the same Author.

The Water of Quick-lime, from its extraordinary Use, has been dignified by the Name of *Aqua Pretiosa*, or *Benedicta Chirurgorum*; for it is a good outward Medicine, not only for cleansing foul and putrid Wounds and Ulcers, but also for dissipating cutaneous Disorders; for which Purposes it is generally apply'd tepid, with a Linen Cloth, either alone, or impregnated with simple or camphorated Spirit of Wine; it is very proper for discussing serous and cedematous Tumors, if frequently apply'd warm with a Sponge or Linen Cloth; but particularly it

cedematous

cedematous Swellings in the Feet are in Danger of a Gangrene, which is known by an Appearance of Spots upon the Part, this Water is highly proper, not only because it dissolves the Tumors, but also because it preserves from Gangrene. It also carries off Inflammations, and resists Gangrene, whether apply'd by itself, or with Sugar of Lead; but the Application ought to be pretty frequently renew'd. In Herpes and Serpigo, whether ulcerated or not, it is an experienced Remedy. *Hippocrates (De Morb. Popul. C. 2. Sect. 5.)* orders Lime-water, but so prepared, as not to exulcerate, to be used for the Vitiligo and Leprosy. The Moderns commend it in the Itch, if the Parts affected be wash'd either with it alone, or together with Sulphur, in the common Itch, or with Mercurius Dulcis in those of the malignant Kind. *Etmuller*, for the same Intention, prescribes one Pint of Quick Lime-water, and from three Drams to half an Ounce of pulveriz'd Sulphur; these are to be boiled together; and after the Liquor is percolated, the Joints of the Body infected with the Itch are to be wash'd with it; or at least the Ointment apply'd to the Joints may be wash'd with it. Three Drams of the Scorix of Regulus of Antimony, added to one Pint of Quick Lime-water, are more successfully used in a scurfy Itch: This Mixture is of singular Service, when apply'd externally. Two Drams of Mercurius Dulcis, dissolved in a Pint of Lime-water, is a Medicine of singular Service in some Chirurgical Cases, since it radically cures all Ulcers of the Body, even those of the longest Standing; and is successful against any Species of Itch. But this Caution of *Ludovicus* must be observ'd, who in his *Pharm.* says, "Water of Quick Lime, saturated with Sulphur, is indeed a good topical Medicine, but requires Circumspection; lest meeting with saline Humours of a like Quality with itself, it should rather increase than remove the Disorder." A Circumstance full of Danger is also often to be dreaded, which is the repelling the scabious Matter from the Skin to the internal Parts by constricting and obstructing the cutaneous Pores by a drying Medicine. This Danger is best prevented by the Use of other Evacuants at the same time. Lancinating Pains of the Legs are frequently very much reliev'd by the Legs being put into this Water; which is also said to take away a Polypus of the Nostrils, if frequently apply'd. A Man forty Years of Age, having a Lassitude all over his Body, and being afflicted with a Heaviness and Pains of his Feet and Loins, boil'd Quick Lime-water in a Kettle, and apply'd it warm, by means of Linen Cloths, to the Belly, and the Region of the Pubes and Kidneys, for almost the whole Night; and by a plentiful Evacuation of Urine was cured. But in a Fever, with the Head-ach, a Cataplasma prepar'd of Quick Lime-water apply'd to the Head, kill'd the Patient, as we may see in *Linde Stolpe de Ven.* When Quick Lime-water is by well shaking mixt with any mild Oil, that, for Example, of Linseed or Olives, it then acquires the Form or Consistence of a Balsam, which is of singular Service, when apply'd externally, in fresh Burns, and also conduces to stop Inflammations. *Slare Sacch. Boyle Specif.* Quick Lime-water may also be impregnated with Copper, by standing in a brazen Basin: by this means it assumes a beautiful sapphire Colour, and proves an excellent Remedy against Pustules, Ulcers, Scabies, and Itching of the Eyes. In the *London and Edinburgh Dispensatories*, there is an *Aqua Sapphirina*, which is nothing but Water of Quick Lime, in which a little Sal Ammoniac is dissolv'd, and which has stood for some time in a Brass Vessel, for the sake of acquiring an azure Colour. In *Schröder's Pharm.* it is called the *Sapphirine Water* for the Eyes; for it is commended against all Blemishes of the Eyes, and also for cleansing all sorts of Ulcers. Empirics sell it for Sapphire-water, against Humours and other Disorders of the Eyes. *Boot. Lib. 2. Cap. 293.* *Etmuller* asserts, That no Remedy is more effectual against cancerous Ulcers, than this Water; and that it is very efficacious when the Eyes are hurt by the Small Pox. This Water may be more or less diluted, according to the Intention, because, when it is not so, it is of too acrid a Quality. It is likewise highly esteemed against Films of the Eyes. That which is call'd the *Aqua Cælestis* consists of the Water of Quick-lime, Sal Ammoniac, and Alum. The *Aqua Calcis* of *Rulandus* for Burns is prepared of five Ounces of Quick Lime boiled with four or five Pints of Spring-water in a Brass Vessel. When the Liquor is filtrated, as much Vitriol is added to it, as is sufficient for giving it a bluish Colour; and as much of the Sugar of Lead, as is sufficient to make it become milky. This Water is commend-ed as a good Application to Parts burn'd or frozen, Gangrenes, Erysipelas, Fistulas, Itch, malignant Ulcers, if often apply'd to the Parts affected in the Day-time with warm Linen Cloths, *Coll. Leyd.* If twenty Grains of corrosive Sublimate Mercury are dissolved in a Pint of Quick Lime-water, according to the *Paris Dispensatory*, and *Lemery's Chym.* or thirty Grains, by the Direction of the *Edinburgh Dispensatory*; or half an Ounce, agreeable to *Lemery's Dispensatory*; we have the *Aqua Phagedænica*, so much celebrated for external Use in destroying fungous Flesh in Wounds, cleansing sordid Ulcers, and against Gangrenes. Some, who would render its

Use the safer, mix with it Spirit of Wine well dephlegmated. Others also mix with it Arsenic, and Spirit of Vitriol. *Charas Pharm.* According to *Etmuller*, the Aqua Phagedænica used in *France*, especially to put a Stop to beginning Gangrenes, particularly of the nervous Parts, is thus prepared:

Take ten Quarts of common Water; let four Pounds of Quick Lime be added to them; and when the Ebullition is at an End, add two Ounces of pulveriz'd Arsenic, and one Ounce of pulveriz'd Mastich: Let all these be well stirr'd with a wooden Spatula, till the Quick Lime subsides to the Bottom; then let the clear Water be pour'd off; to which add two Ounces of Sublimate Mercury, and six Ounces of rectify'd Spirit of Wine. Mix them together.

He says this Water is really excellent in Practice; and that, if it seems too acrid, it may be corrected by the Addition of more Spirit of Wine. The compound Polychrest-water of Quick Lime, most useful against Tumors with Inflammation, moist Exulcerations, and Dispositions to a Gangrene, he directs to be prepared thus:

Take four or five Pounds of Quick-lime; a Pound and an half of Sal Ammoniac; half a Pound of Litharge; of Olibanum, Myrrh, and Mastich, each half an Ounce; of Camphire, one Dram: Let them be boil'd together, till the Litharge be dissolved. Let this be apply'd twice or thrice a Day warm with Linen Cloths.

In *Courland* this Composition is usual, under the Name of

The WHITE EPITHEM.

Take three Ounces of Quick Lime; six Drams of camphorated Spirit of Wine; one Dram of Sugar of Lead; half a Scruple of Mercurius Dulcis: Mix them together.

With Cremor of Quick Lime, according to *Etmuller*, the Lips of a cancerous Ulcer may be anointed, that the corrupted Part may be consum'd, while the sound remains. With Bole Armoniac 'tis a Specific in the Ozæna. *Ludovicus*, in his *Pharm.* gives this Advice concerning the Cremor: "It is not unsuccessful outwardly in sordid and inveterate Ulcers; but in an exulcerated Cancer, Spina Ventosa, or scintomatous Swellings, it ought to be cautiously apply'd; since instead of promoting the intended Separation, it often increases the Pain, and augments the Discharge of Matter."

Slak'd Lime may be substituted in the Room of Quick Lime, when a little less Acrimony is necessary. In the *East-Indies* it is apply'd to the Temples to dissipate Head-achs arising from Refrigeration; and is used for the Wounds inflicted by Scorpions, and Stings of Wasps. But for dispelling cold Tumors of the Knees and Abdomen, and discharging Wind, they reduce it with a Mixture of Honey into the Form of a Plaister, which they leave apply'd till it falls off of itself, after having perform'd its desir'd Effect. However, before the Application of this Plaister, they anoint the Part affected with Oil. In the *East-Indies* it is also mix'd with Tobacco-juice, as a Remedy proper for killing Worms discover'd in Wounds. *Lettr. Edif. and Leenwenb. Epist. 124.*

Wash'd Lime is a Chirurgical Remedy, which dries without Pungency, and is proper for Burns, and too moist Ulcers. Hence Ointments of wash'd Lime are in high Request for Burns. For Example:

Mix wash'd Lime with Oil of Roses or Linseed; and let them be well stirr'd in a Leaden Mortar, to the Consistence of an Ointment, which is excellent for Burns.

This Medicine is prepared in a Leaden Mortar; for by this means the Particles of the Lead are successively abraded, and united with the Ointment; a Circumstance which contributes not a little to heighten its Excellence.

A very useful Remedy is also produc'd from wash'd Lime against any kind of Ulcers.

Take as much as you please of Lime twice or thrice wash'd, and almost dry'd; add Linseed-oil, a sufficient Quantity; tinge it of a Flesh-colour with the choicest Bole: And thus you have an excellent Ointment.

Joel informs us, that Lime reduc'd to a very fine Powder, and wash'd three or four times with Rose-water, and again reduc'd to Powder, is an excellent Remedy against Venereal Ulcers of the Pudenda, if 'tis sprinkled on them, as it removes and consumes all Impurities, and quickly brings on a Cicatrix. In the *Ph. Aug.* that of *Antwerp*, and that of *Lemery*, there is

an Ointment of Lime, made of wash'd Lime and Wax, each three Ounces; and one Ounce of Oil of Roses; which is also commended for Burns, and drying of Ulcers. If Lime be slak'd with Vinegar, thrice wash'd, and reduc'd with Oil of Roses to the Form of a Liniment, it heals Burns without any Trace of a Cicatrix, and suffers no Blisters to arise, *Mus. Worm.* Thus far of the external and chirurgical Uses of Quick Lime, and its Preparations. The Effects it produces may be accounted for, either from its corroding, burning, cleansing, and, consequently, acrimonious Quality, or from its drying and astringent Properties.

Whoever reflects on the foregoing Remarks concerning the fatal Effects, not only of Quick, but also of Slak'd Lime, whereby they have merited a Place in the Catalogue of Poisons, will, in all Probability, never reason himself into a Persuasion, that either Slak'd Lime, or the Lixivium of Quick Lime, can with Safety be used internally. But there are celebrated Physicians, who being instructed by successful Experiments, have ventured to commend, in many Diseases, the internal Use of both Slak'd Lime, and of Quick Lime-water. Thus Slak'd Lime is prescrib'd by some for a Clyster, in the Dysentery, as an astringent, drying Remedy. And according to an Observation of Mr. *Homburg*, a Man was cured of an Hypochondriac Disorder, by a Medicine prepared of two Parts of Quick Lime extinguished by the Air, mixt with one Part of Sal Ammoniac; twenty Grains of which were exhibited for a Dose. And Lime dissolved per Deliquium holds not the last Place among aperient Medicines. *DuHamel's Hist.* Quick Lime-water is most frequently used through *Great Britain and Holland*, for purging away all kind of Chronical Diseases, *Schulz. Præcl.* In *Bates's Dispensatory* what is call'd *Aqua Benedicta*, is prepar'd of

One Pound of Quick Lime, with eight Pints of Water; boil'd and filtrated after settling.

Three or four Ounces of this may be prescrib'd thrice à Day; or as common Drink, for a Month, in several Cases; such as Redness of the Face, Pustules, Strumæ, Asthma, Phthisis, Empyema, malignant Dysentery, aqueous Tumors of the Scrotum, Fluor Albus, the wandering Gout, Freckles, Herpes, Gangrene, Œdema, Tumors of the Knees and Legs, all Ulcers attended with an Afflux of Humours, as also in a Diabetes. What in the same Dispensatory is call'd *Aqua Benedicta Composita*, is made of

One Ounce of Sassafras-bark, six Ounces of squeeze'd and ston'd Grapes, and six Drams of Nutmeg; all which together are to be infus'd cold in six Pints of the fore-mentioned *Aqua Benedicta*, for two Days, and then strain'd.

This is said to be of the same Effect with the former, but more powerful in some Cases. In the *Edinburgh Dispensatory*, the simple *Aqua Benedicta* is the same with that mentioned above; but the Compound is thus made.

Take of the Raspings of the Wood and Bark of Sassafras, two Ounces; of Nutmegs, three Drams; of sliced Liquorice, one Dram; of fresh Lime-water, four Pints: Digest for two Days; and to the percolated Liquor add two Ounces of the balsamic Syrup.

Sylvius, one of the most celebrated Physicians in *Holland*, says, in his *Præx. Med. L. 1. C. 6. § 14.* "That Quick Lime prepared of burnt Flint or Shells, admirably corrects a saline Acrimony like that contained in marine and fossil Salt, and in most saline Substances; so that it is no more to be dreaded by any prudent Physician, but is with Confidence to be used in the Form of a Lixivium, in many Disorders." In *Great Britain*, *Willis*, according to *Et Müller*, gave Quick Lime-water not only in Exulcerations, or an Abscess of the Parts situated within the Breast, but also for cleansing and deterging Abscesses of any Parts of the Abdomen after breaking; and in the Diabetes. The same *Willis*, for a diuretic Medicine, commends a Mixture made of

Four or six Ounces of Quick Lime-water, and one Dram, or a Dram and an half, of Tincture of Salt of Tartar; of which a Draught is to be taken twice or thrice a Day.

In Spitting of Blood, *Bennet* proposes this compound Lime-water:

Take of Comfrey, common Knot-grass, Plantain, Burnet, each one Handful: Let them wither in Quick Lime; and after they are perfectly dry, let them be infused in common Water, which may be added to them till they are of

the Consistence of a thick Pulp. Let the Infusion be continued for three Days, and the Matter often stirr'd; then let them lie in a cool Cellar, and let the clearest Water be pour'd off by Inclination. Of this let the Patient take six Ounces for four or five Mornings successively; and tho' the Case should appear pretty desperate, the Remedy will scarcely fail of Success. *Bened. Théat. Tab. p. m. 140.*

Among the *French* Authors, *Sponius* says, That Quick Lime-water, drank with Milk or Whey, performs wonderful Effects in internal Ulcers, Diarrhœas, and the Dysentery. Dr. *Burlet*, a Physician of *Paris*, and a Member of the Royal Academy of Sciences, has given a Dissertation on the Use of Quick Lime-water, of the Passages of which most useful for a practical Physician; I shall here give an Abstract. Quick Lime-water, then, mixed with an equal Quantity of Cows Milk, sweeten'd with Sugar, drank thrice a Day, three Ounces being taken for each Dose, is of Use in the Dysentery. In other Diseases it may be mixt with Remedies appropriated to the particular Nature of the Disorder; for Example, in the Scurvy and Dropsy; with about a tenth Part of its Weight of the Tinctura Metallorum; six Ounces of which Mixture daily given for a Dose, in such Cases, fuse the Humours, and provoke Urine. Against those Cachexies to which young Women are subject, he prescribes the following Mixture.

Take of Quick Lime-water, and Tinctura Metallorum, each four Ounces; of the Powder of Aloes, one Ounce; of Filings of Steel, two Drams: Let them infuse for forty Hours. If to this Mixture three Drams of the Resin of Jalap be added, we have an excellent Purgative in the Dropsy, two Spoonfuls of which are to be given every other Day, in Broth of Flesh, or the Juice of red Cabbage.

In Quartans, and every kind of the more obstinate and intermitting Fevers, Peruvian Bark is with Success given with Quick Lime-water, and some Drops of the Tinctura Metallorum. In the Asthma and Atrophy,

Take of Quick Lime-water, eight Pints; of Sassafras-wood; Aniseed, and Liquorice-roots, each four Ounces; of Currants, and Damask-grapes, half a Pound: Let them be infused without Heat. Two Ounces and somewhat more of this Infusion may be exhibited twice a Day:

The following Observations have been made concerning the Use of Quick Lime-water. It often excites Nauseas; and palls the Appetite to such a Degree, that it is sometimes necessary to prescribe *Alicant* Wine, Wormwood-wine, or *Venice* Treacle. It sometimes induces Leanness, and dries too powerfully; sometimes it excites Heat, renders the Patient costive, causes plentiful Discharges of Urine, and often raises a Diaphoresis. Mixt with Milk, or a vulnerary Decoction, it is very often useful in the Cure both of internal and external Ulcers. It stops Hæmorrhages, Diarrhœas, the Fluor Albus, and the Gonorrhœa. It is of Service in Relaxations of the Viscera, and in a Diabetes. It is of Use in all inward Obstructions and Tumors, when they have not degenerated into a Scirrhus or Cancer, and in Scrophulæ not yet inveterate; mixt with Milk, it prevents its Coagulation, and is consequently proper for those whose first Passages abound with an Acid, which forbids the Use of Milk. It increases the purgative Qualities of Scammony, Aloes, and Jalap. That the Use of Quick Lime-water may be successful, it should be long continued; but it is strictly to be adverted to, that it is proper only in Countries situated to the North; and that in such Disorders only as draw their Origins from an acid, an austere, a viscid, a mucous, or pituitous Cause; in Cases where a due Degree of Motion and Stimulus are wanting in the Fluids; and where fix'd muriatic Salts lodg'd in the Blood are to be corrected and disposed for an easy Evacuation: For Example; in *Holland*, where the Climate is cold, the Air somewhat thick with the Damps of the Marshes, where the Drink is Beer, the Food Cheese, Butter, and Salt-fish, the Blood is by these means render'd too crude, less fluid than it ought to be, and, consequently easily stopt in the capillary Vessels. Hence proceed Obstructions, and chronical Disenses; for which Alteratives are of singular Service; among which Quick Lime-water, in Conjunction with *Tinctura Metallorum*, a highly penetrating Medicine, is none of the least considerable, since it is exhibited with great Success. It is obvious therefore, in what Species of the Scurvy Quick Lime-water becomes a laudable Medicine, when daily drank to the Quantity of three or four Ounces. From what has been said, it is now manifest, that Quick Lime-water proves hurtful, when exhibited at the time of the necessary Evacuations, such as the Menses, Hæmorrhoids, and in Diarrhœas, which it suppresses: Nor is it proper in Cases where there is a Weakness of Appetite, or Loathing of Food, where the

the Patient is either emaciated or costive, or where a preternatural Heat or Thirst prevails. It is equally prejudicial in Cases where the Fluids are inclin'd to an Alcalescence, where the Bile is too much exalted, where the Humours have assum'd a salino-putrid Quality, or are in a State of Dissolution, attended with an Acrimony. It is also hurtful in Disorders of the hot and acute Kind, and in Cases where the Fluids are already too much parched, or put into too brisk and lively Motions. Hence it must of course be highly improper in that Species of Scurvy, which is accompanied with Putrefaction, and draws its Origin from a rancid Oil, and an acrid Salt. For which Reasons, in the hotter Climates, such as *Paris*, the Use of it is generally attended with unhappy Consequences. But in Cases where it is proper; that is most safely used which is prepar'd of one Pound of Quick-lime, with eight Pints of Water pour'd upon it. In many Instances, where a gentle Stimulus is only requir'd, the secondary Water of Quick-lime is to be preferr'd. *Hamel's Hist. the Memoirs of the Royal Academy of Sciences, 1700. Slave Sacch. Boerb. Chym. Vol. II.* From the Premises we may rationally conclude, that, whatever is the Effect of Quick-lime-water, it ought to be attributed to the alkaline and highly minute Molecules of the Quick-lime, incorporated with the Water; for on these depends that Virtue by which it absorbs Acids, dries, and consequently corroborates, and acts like a Styptic; but proves aperient, where an Alkali, meeting an Acid, constitutes a neutral Salt, which acts both like an Aperient and Deobstruent, by exciting a Diaphoresis, and promoting a Discharge of Urine.

As Quick-lime-water has a Tendency to destroy Acidity and Phlegm, hence the anthelmintic Remedy of the *Indians* is not to be esteem'd absurd, who drink it in the Morning three Days successively against Worms of the Intestines. *Lettr. Edif.* Whether Quick-lime-water, internally used, is a Remedy proper for dissolving the Stone, must be judg'd of from this Circumstance, that it reduces to a Mucilage Stones cut from Patients afflicted with that Disease. *Barthol. Epist. Cent. 4. Reiger.*

CALYPTER, καλυπτήρ, from καλύπτω, to hide. A car-nous Excrecence covering the hæmorrhoidal Vein. Περιπέφυκεν αὐτῇ (αἰμαλίστιδι) καλυπτήρ ὁ τῆς σαρκός. "There grows about it (the bleeding Vein) a Calypter, or Covering of Flesh." *Hippocr. περὶ αἱμαρρῶιδων.*

CALYPTRA. See the Explication of this under the Article **BOTANY**.

CALYX. See **BOTANY**.

CAMANHAYA, *Brasil.* *Marcgr.* A capillary Herb, which grows upon the highest Trees, so as quite to cover them; it is of a grey Colour, like a sort of Down, and is adorned at certain Distances with six, five, three, two, or perhaps but one Leaf, like that of Rosemary. It seems to be a Dodder. *Ray, Hist. Plant. Index.*

CAMARA, καμάρα, in Anatomy, is the Fornix of the Brain; and the camerated or vaulted Part of the Auricle, leading to the external Foramen. See **AURIS**.

CAMARA is also a Species of **LYCHNIS**, which see. *Ray Hist.*

CAMARA-JAPO, *Pison.* A Species of *Mentastrum*, or Horse-mint. It shoots up one round hairy reddish Stalk, to the Height of two Feet; the Leaves are lightly serrated, and greyish underneath, standing opposite by Pairs, with many lesser ones adjoining. On the upper Branches of the Stalk stand the Flowers, in the Form of an Umbella, coming forth all the Year round, almost like those of Tansey, with Stamina of a watry azure Colour, and smelling like Horse-mint, as the whole Plant also does, which is of a bitterish and aromatic Taste. The Seed is slender, long, and black, and, when ripe, is blown away out of its downy Husks. *Ray Hist. Index.*

CAMARA-MIRA, *Pisonis*. It is, says *Piso*, a Plant a Cubit high, of a slender and woody Stalk, bearing one small yellow Flower, which, what is to be wondered at, opens at all times of the Year, at Eleven o'Clock in the Forenoon, and continues expanded till Two in the Afternoon, when they all shut up together till the next Day. I made this no less true than delightful Observation, says he, in my Travels thro' the Deserts, and it partly supplied the Want of a Watch. It grows in *Brasil*. *Ray, Hist. Plant.*

CAMARA-TINGA. A Species of *Chamaepericlymenum*, or Dwarf Honey-suckle, growing in *Brasil*. It bears a red, and sometimes a yellow Flower, which is of an extraordinary Fragrancy, and the Herb itself smells sweeter than Mint. The Flowers are succeeded by Clusters of green Berries, of the Bigness of Elder-berries. *Ray, Hist. Plant.*

CAMARA-CUBA, *Brasilianis*, *Marcgr.* is an Herb with hairy rough Leaves like Nettles, and Flowers of the Size of those of the *Bupthalmum*, of a fine yellow Colour, consisting of nine Leaves, with a large yellow Umbilicus in the middle, whence rise little black Stamina, of a Smell between Nettle and Mint. To the Flowers succeeds oblong blackish

Seed, like that of *Succory*; the Plant feels quite glutinous; *Ray, Hist. Plant.*

CAMARAN-BAJA. A Species of *LYSIMACHIA*, which see.

CAMARIN-BAS, *vel Umari*, *Pison.* *Marcgr.* *Arbor pruni-fera Brasiliensis, fructu Persici instar mali.* It is a Tree of a moderate Height, and bears a small yellow Flower, succeeded by an oval Fruit, of the Size of a Plum, which looks and tastes like our Peach; and is green, inclining to a pale yellow. The Pulp is little in Quantity, sweet, and yellowish, inclosing a large, oval, whitish Stone, which contains a Kernel that is good to eat; the Fruit is ripe, and falls off in *March*.

The Fruit eaten raw disturbs the Stomach, and is very subject to excite Vomiting; therefore they use to boil it whole, and, bruising it with the Kernel, eat it with Flesh or Fish instead of Bread.

It grows very plentifully in the grassy Fields, about the *River Gunhao*, and *Rio grande*; the Fruit falls off in *March*, and is gathered up.

Piso mentions another Species of this Tree, less tall, and bearing Fruit not unlike the former, but of a blackish Colour, and a sourish Taste, which tempers the immoderate Heat of the Stomach, and is very acceptable to feverish Persons. *Ray, Hist. Plant.*

CAMARIUM. The same as **CAMARA**, which see.

CAMAROSIS, **CAMAROMA**, καμάρωσις, καμάρωμα, is a Fracture of the *Cranium*, in which the broken Bone is elevated Vaultwise. *Paulus, Lib. 6. Cap. 90.* says, "It is a Division of the *Cranium* in which the Bone is elevated, or, according to *Galen*, a Recession of the Bone to the internal Parts, and an Excavation, as in an *Epiptisma*." This is the Sense which *Paulus* puts upon *Galen's* Words, which seems to contradict his own Definition. The Place he quotes is in *Galen, Lib. 6. M. M. Cap. 6.* "Engisomata, ἐγγεισώματα, are Fractures of the *Cranium*, in the middle of which the Bone presses upon the Membrane; but *Camaromata* are Fractures of the same Part, in which the Middle is elevated; but when the sound Part first begins to separate from that which is affected, the *Camaromata* recede inwards, and press upon the Membrane." Thus *Galen*: By which it appears, that in a *Camaroma* the Extremities of the broken Bone tend inwards towards the Membrane, so as to press upon it; but the adjacent Parts of the Bone are elevated, and recede from the Membrane; and consequently, in this Species of Fracture, there is a double Eminence of the Bone on the Sides of the Wound. *Gorræus.*

Camarosis, in a general Acceptation, is defined by *Galen, Def. Med.* "a Division of a Bone, when, being fractured on both Sides at once, it takes the Form of a Vault." Καμάρωσις ἐστὶν ὅτ' ὁσ' διακοπή, μετὰ τῷ τὸ ὅτ' ἂν ἄμα κεκλῆσθαι ἐξ ἀμφοτέρων, καὶ παραπλησίως καμάρωσις ἐσχηματισθῇ.

CAMARU. A Species of *SOLANUM*, which see.

CAMATOS, κάματος. Labour, Fatigue, a Disease.

CAMBAR. A spagirical Term, derived, as is said, *Theat. Chymic. Vol. 5.* from *Canna*, Fire, and *Bar*, a Son. The Explication of this Word is not intelligible, at least by me.

CAMBIL. *Terra rubra. Rulandus.*

CAMBIUM. A Term in Use formerly to signify the nutritious Humour, which deriving its Origin from the Blood, is so concocted, prepar'd, and assimilated as to supply what that Part has lost, & cum illa Naturam suam cambiat, and changes Nature with it. *Sennertus, Tom. I.*

CAMBOGIUM, *Offic. Commel. Flor. Mal. 66. Carcapuli, THE INDIAN YELLOW ORANGE OF MALABAR.* *Park. Theat. 1635. J. B. 1. 105. Chab. 5. C. B. Pin. 437. Raii Hist. 2. 1661. Carcapuli Malabarensium, Jons. Dendr. 26. Carcapuli Acosta fructu, malo aureo simili, Pluk. Almag. 81. Arbor Indica, quæ Gummi guttæ fundit, fructu acido sulcato, mali magnitudine, Commel. Flor. Mal. 66. Coddam-Pulli seu Ota-Pulli, Hort. Mal. 1. 41. Tab. 24. Carcapuli, Linscot. Ind. Orient. Part. 4. Arbor Indica Gummi Guttam fundens, fructu dulci rotundo, Cerasi magnitudine; Kannawakoraka, Kapnajoraka, Gohkathu, Ghoraka Cingh. Herm. Mus. Zeylan. 26. GAMBOGE. See **GUMMI GUTTA**.*

CAMBUCA, or *Cambuca membrata*. A Bubo, an Ulcer or Abscess of the Pudenda, a Boil in the Groin. *Castellus. Rulandus.*

CAMBUI, or the wild *American Myrtle* of *Piso* and *Marcgrave*. There are two Species of this Plant, which on account of their Fragrancy, and the Astringency of their Leaves, Flowers, and Fruit, well deserve the Name of the *Wild-myrtle*. The first is a shrubby Plant, with broad Leaves, and is like the black Cherry-tree, as to external Appearance, in Branches, Leaves, Flowers, and Fruit; but exceeds it as to its internal Qualities; for not only the Leaves and Flowers are of an excellent Smell, but the black Berries are very juicy, with a grateful Astringency, which makes them acceptable to all sorts of People, and sold in the Market. The latter Kind

is red, and is as much superior to the other in Goodness, as it is exceeded by it in Size, the Fruit being highly delicious, as well as medicinal; it blossoms in *October*, the Flower being very white, fragrant, and tetrapetalous. The red Berries refresh and corroborate the Stomach, and allay feverish Heats. The Juice or Decoction of the Leaves and Fruit used outwardly heal Ulcers, especially in the Legs, and by their astringent and cleansing Qualities are serviceable in other Diseases. Used in Bathing, they are very successful in Fluxes of the Belly or Uterus; they are also serviceable for the same Purposes as the common Myrtle. There is a third Species called the White-myrtle, but this is not so common as the others. *Ray, Hist. Plant.*

CAMELINA, CAMELINE. See ERYSIMUM.

CAMELOPARDALIS, CAMELOPARDUS, καμηλο-πάρδαλις, καμηλόπαρδος, from κάμηλος, a Camel, and πάρδαλις, or πάρδος, a Leopard. A Beast so called, according to *Varro*, not because it is generated between a Camel and a Leopard, but because it is shaped like a Camel, and spotted like a Leopard; or, according to *Pliny*, because it has a Head like a Camel, but has its Body variegated with Spots like a Leopard. *Horace* describes it in the following Verse, according to the common, tho' erroneous Notion,

Diversum Panthera Genus confusa Camelo.

The *Camelopardalis*, otherwise called *Camelopardalus*, *Ovis fera*, *Giraffa*, *Anabula*, *Nabis*, *Saffarat*, and *Nabula Æthiopica*, is a kind of Camel, but spotted like a Leopard. It is near as big as an ordinary Camel, and has two small Horns, with a Tubercle in the middle of its Forehead, which might almost pass for a third Horn. Its Neck is seven Feet in Length, and cover'd with Hair like that of a Horse; its Tail is small, thin, and hairy towards the End. It is cloven-hoofed like an Ox, its Tongue is two Feet in Length, round like an Eel, and of a dark Colour, inclining to a Violet. It feeds upon Grass and Herbs, and the tender Branches of Trees, which by the Advantage of its long Neck it easily reaches.

It is found in *Ethiopia*, and other Parts of *Africa*, and is very gentle and tractable. The Horns and Hoofs rasped, pulverized, and taken inwardly, are good for the Epilepsy, stop a Looseness, and resist Poison. *Lemery des Drogues.*

CAMELUS, Offic. Aldrov. de Quad. Biful. 880. Jonf. de Quad. 67. *Camelus Capsinus*, Charlt. Exer. 13. *Camelus Dromos*, Gesn. de Quad. 59. *Camelus unico in dorso gibbo*, Raii Synop. A. 143. THE CAMEL, or DROMEDARY.

It is found in *Asia* and *Africa*. The Parts used in Medicine are the Blood, Gall, Dung, and Urine. The Blood helps the Dysentery, promotes Conception, and cures the Epilepsy; the Dung is recommended in Apoplexies; the Urine is supposed to be effectual for cleansing and whitening the Teeth. *Dale* from *Pliny*.

Authors differ much about the Camel and the Dromedary. The Gentlemen of *Paris*, our *Ray*, and others, call by the Name of *Dromedary*, an Animal which has but one Bunch on his Back; but call a Camel, one which has two Bunches on that Part. But I have been told by an ingenious Person, who very lately travelled into *Asia* and *Africa*, and agrees with *Johnson*, that the Camel is an Animal with only one Bunch on his Back, but the Dromedary has two; and that this latter was a very scarce Creature, and made use of by the Nobility only for its Swiftnefs; but the Camel was principally used for performing Journeys. *Dale.*

CAMERATIO. The same as CAMAROSIS, which see.

CAMET, CAMES. Silver. *Rulandus*.

CAMINUS, κάμινος. It signifies both the Furnace, and the Place through which the Smoke passes off. In *Rulandus* it signifies a Bell.

CAMIRI *Indis*, Clus. *Fructus rotundus inæqualis cineraceus foveus*, C. B. *Fructus juglandis fere magnitudine durissimus*, *Indis Camiri*, *sapore nucis moschatae*, J. B.

The Fruit weighs about an Ounce, and is not unlike a Walnut stript of its outer green Shell, rough, broader in the upper Part, but ending below almost in an obtuse Point; the Shell is thick, and as hard as a Stone, containing a white Kernel, which tastes much like an Almond. *Ray, Hist. Plant.*

CAMISIA *Fætus*. The Shirt of the Fætus; it is put for the *Chorion*, which see.

CAMMARUM, CAMMORUM, CAMARUM, κάμ-μαρον, κάμμορον, κάμαρον, is a Species of Shrimp of the Crab kind. Κάμμορον in *Dioscorides*, Lib. 4. Cap. 77. is also a Species of Aconite, called also θηλυφόνον; and by *Nicander* in *Alexipharmic. Verse* 41. πολλάκι θηλυφόνον ἢ κάμμορον. Hete the Scholiast writes, that it is called κάμμορον, because κάμ-μαρον ἀνὰ θάλασσαν, "It kills with cruel Death." *Pliny*, Lib. 27. Cap. 3. says it is called *Cammarum*, because it has a small Root, resembling the Sea *Cammarum*. Κάμμορον, or κάμμορον, is a Species of Crab, called by *Athenæus* κάμμοροι.

And κάμμορον, in *Galen's* Exegesis, is an Animal resembling a small Sea-shrimp; and also Aconitum, because it has a Root like that Animal; but then he adds, that neither of these Senses will agree with that Word, as it is used by *Hippocrates*, Lib. de locis in *Homiæ*, where he prescribes the Application of the *Cammarum* in burning Heats. Hence *Erotian* says, that not only the Animal is called κάμμορον, but the Moss which adheres to it goes by the same Name. *Zeno* takes it for *Cicuta*, *Zeuxis* for a refrigerating Medicine. Thus *Galen*: The Passage where the Word is found in *Hippocrates* runs thus: Τὰς δὲ πυρώσας πόσιν καὶ φορήμασιν, ὥσπερ τὸν πυρετὸν ψυχρόν φαρμάκῳ ἐκλθεῖν, κάμμορον, ἢ ἄλλῳ τινὶ τοιούτῳ. "The burning Heats must be allayed by drinking or supping of Liquid," "as by some refrigerating antifebrile Medicine, such as the *Cammarum*, or something of that Kind." Here *Galen* and *Erotian* for κάμμορον both read κάμμορον. For tho' the Word in the Index of *Erotian* be κάμμορον, yet in his reciting the above-mention'd Passage of *Hippocrates* he reads κάμμορον. He observes also, that this Word occurs but once in *Hippocrates*, and that *Zeuxis*, in the second Book of his Exegetics, took it for some refrigerating Medicine; and that *Dioscorides*, Lib. 4. of his *Materia Medica*, says, that Aconitum is by some called κάμμορον, by others θηλυφόνον [Woman-killer]; because the Root applied as a Pessary is mortal within the Space of a Day; as *Theophrastus* and *Pliny* write; and the latter says, that by means hereof *Calpurnius Bestia* killed his Wives when they were asleep. *Erotian*, rejecting the Opinion of *Lycus*, who reads κάμμορον in *Hippocrates* with a single μ, and takes it to be meant of a Place in the Bath where Inunction was perform'd, so called, because it was vaulted, thinks we are to understand it, as *Zeno* and *Zeuxis* did, of some refrigerating Medicine, as *Cicuta*, which, apply'd by way of Cataplasm, is an extraordinary Refrigerant. *Galen* seems to be of the same Opinion. *Erotian* further tells us, that *Diodorus* the Grammarian, and *Zeno* a Follower of *Herophilus*, assure us, that *Cicuta* was by the *Dorians* inhabiting *Italy* called κάμμορον, κάμμορον, and κάμαρον, ὡς κακὸν κάμμορον τι ὄν, "as producing fatal and deadly Effects."

CAMNO, κάμνω, to labour, in *Hippocrates* signifies to labour under any Disorder, to be sick.

CAMOMILLA. A corrupt Word for *Chamæmelum*, Chamomile.

CAMOTES. See BATTATAS HISPANICA.

CAMPANA, a Bell, in Chymistry, is a Receptacle for the Gas of Sulphur, where it is concentrated and collected together into a thin aqueous Matter, in order for the Preparation of the acid Spirit of Sulphur. *Castellus*.

CAMPANIFORM Flowers, [of *Campana*, a Bell, and *Forma*, Shape] such Flowers as in Shape resemble a Bell.

CAMPANULA. Bell-flower.

The Characters of the *Campanula* are,

The Summit of the Pedicle is expanded into an Ovary, whose Apex is crown'd with a monophyllous quinquifid Calyx, divided into five long Segments. The Flower consists of one Leaf, is shap'd like a Bell, and is, before blown, of a pentagonal Figure, and, when fully open'd, is cut into five Segments at the Top. The Seed-vessel is, for the most part, divided into three Cells, each having a Hole at the Bottom, by which the Seed is emitted. *Boerhaave* enumerates thirty-four different Species of this Plant; but I find no medicinal Virtues attributed to any but the following.

CAMPANULA ESCULENTA, *Rapunculus*, Offic. *Campanula radice esculenta, flore cæruleo*, Herm. Cat. Hort. Lugd. Bat. 107. *Boerh. Ind. A.* 248. *Tourn. Inst.* 111. *Elem. Bot.* 90. *Dillen.* 107. *Rupp. Flor. Jen.* 24. *Buxb.* 52. *Rapunculus*, Chab. 260. *Rapunculus esculentus*, C. B. Pin. 94. *Raii Hist.* 1. 739. *Synop.* 3. 277. *Hist. Oxon.* 2. 455. *Rapunculus esculentus vulgaris*, GARDEN RAMPIONS. *Park. Theat.* 647. *Rapunculus vulgaris campanulatus*, J. B. 2. 795. *Rapuntium parvum*, SMALL RAMPION. *Ger. Emac.* 453. *Ger.* 369. *Mer. Pin.* 104. *Merc. Bot.* 1. 64. *Phyt. Brit.* 105. RAMPIONS.

The Seed is recommended for Defluxions of the Eyes, and the Juice for Pains in the Ears. The Root is esteem'd an agreeable Ingredient in Spring Sallads, and is said to excite an Appetite; it is sometimes eaten boil'd. If taken with long Pepper, it has the Reputation of increasing Milk.

Trachelium, *Cervicaria*, Offic. *Trachelium majus*, *Ger.* 369. *Emac.* 448. *Raii Hist.* 1. 732. *Mer. Pin.* 119. *Trachelium majus, flore purpureo*, *Park. Parad.* 354. *Trachelium majus, five Cervicaria*, *Merc. Bot.* 1. 73. *Phyt. Brit.* 122. *Campanula, Cervicaria*, Chab. 263. *Campanula vulgarior, foliis Urticæ, major & asperior*, C. B. Pin. 94. *Hist. Oxon.* 459. *Boerh. Ind. A.* 249. *Tourn. Inst.* 109. *Elem. Bot.* 90. *Raii Synop.* 3. 276. *Dill. Cat. Giff.* 126. *Rupp. Flor. Jen.* 23. *Campanula major & asperior, folio Urticæ*, J. B. 2. 805. *Buxb.* 52. THROATWORT.

The whole Plant, but especially the Root, is of a drying and astringent Quality; for which Reason a Decoction of it is of good Use in the Beginning of an Inflammation, or Ex-

ulceration

ulceration of the Mouth and Tonsils, and in other Disorders which require Astringent. It is also, no doubt, serviceable in the Cure of all other Ulcers, on account of its remarkably drying Virtue. The Root is of a white and tender Substance, and proper to be eaten in a Sallad for Breakfast, in the Spring: *Raii Hist. Plant.*

MEDIUM, Offic. *Medium Dioscoridis*, Rauw. 284. *Medium Dioscoridis Rauwolfio*, J. B. 2. 805. Chab. 26. *Viola Mariana peregrina*, Park. Theat. 646. *Viola Mariana laciniatis foliis, peregrina*, C. B. Pin. 94. *Campanula foliis profunde incis, fructu duro*, Tourn. Corol. 3. SYRIAN BELL-FLOWER.

It grows in Syria and Greece; the Root and Seed are in Use; the Root stops the Menfes, but the Seed provokes them.

Dale is of Opinion, with *Rauwolfius*, that the above Plant is to be taken for the *Medium* of *Dioscorides*, rather than the *Viola Mariana*, which *Matthioli* takes for it, because it best agrees with that short Description which *Dioscorides* has left us of the *Medium*. "The *Medium*, says he, grows in stony and shady Places; has Leaves like the Iris, a Stalk three Cubits in Height, which bears a large purple round Flower. It has a small Seed like the Cnicus, and a Root three Quarters of a Foot in Length, of the Thickness of a Walking-stick, and of a rough Taste."

Campanula arvensis erecta, H. L. Bat. *Onobrychis arvensis vel Campanula arvensis erecta*, C. B. Pin. 215. *Pentagonion, viola Pentagonia*, Tabern. Icon. 316. *Viola arvensis ejusdem*, 304.

The Root of this Plant is usually eaten as a Sallad in the Spring.

CAMPE, *καμπη*, from *καμπηω*, to bend. A Flexure, or Bending. The Word is used by *Galen*, *de Usu Partium*, Lib. 11. Cap. 11. where, speaking of the admirably contrived Perforations from the Nostrils into the Palate, he observes, that they are disposed in such a manner, as that the Beginning of Respiration might not lie in a direct Line with the Aspera Arteria, but that there might be *καμπη*, a Deflexion, or Bending, with a sort of Turning or Winding, before the Air arrives at the Artery; which, he says, is attended with two Conveniences; one, that of preventing the Lungs from being refrigerated by an immoderately cold Air; and the other, the intercepting Particles of Dust, Ashes, or any thing of that Kind, in their Passage to the Artery.

Καμπη is also used for *ἰγυὺς*, the Ham, because it is the Part usually bended; also for a Joint, and for an Articulation, or Flexure of the Fingers.

CAMPBORA.

The Camphire is a kind of Plant, which belongs to the Class of dicotyledonous monopetalous Trees, whose Ovary is concealed in the Flower, and its Fruit soft, and full of callous Seeds. The Leaves are like those of the Pear-tree, fibrous, and stand alternately upon the Branches; the Flower consists of one Leaf, which is divided into five or six Segments; the Fruit is like a Nut, lodged in a concave Calyx, has a brittle Shell, and a bifid Kernel. *Boerhaave Index alter Plant. quæ in Horto Lugd: Bat. aluntur.*

The Root of the Camphire-tree has but few, and those strong, Divisions, which smell stronger of the Camphire than the other Parts, and yield more of it in the Boiling. The Bark is somewhat rugged, of a russet Colour; smooth on the younger Branches, of a greenish Colour, shining, quite smooth and mucous on the inner Superficies, and therefore easily separated. The Tree contains a large, fungous, and ligneous Medulla, or Pith; the Wood is white, but when dry reddish, with Variations, of a pretty lax Substance, composed of somewhat thick Fibres, and is sometimes used for making of Cabinets, but grows rough with Age, when the volatile Resin forsakes its Pores. The Leaves, which stand single and disorderly upon slender carinated Pedicles, an Inch and half in Length, and sometimes of a reddish-green Colour, are membranaceous, three Inches or more in Length, from a short acute Beginning dilating into an Oval, and ending in an oblong narrow Mucro, or Point, undulated round the Margin, and often edged with a thin palish Stripe; the upper Face of a deep and shining Green, but the under herbaceous, and, as it were, Velvet-like; the main Rib in the Middle being prominent on both Sides, and of a whitish Green; a few lateral Fibres thence extending themselves in manner of an Arch to the Circumference, between which run many lesser ones for the better strengthening of the Leaf; at the Extremities of the Fibres are often observed small Tubercles. The Flowers come forth at the Tops of the small Branches, when the Tree is of a good Age and Bigness, in May and June, from the Axæ of the Leaves, standing on slender Pedicles, which are two Inches in Length, cluster'd, and divided into other very short Pedicles, each of them furnished with a very small Perianthium. The Flowers are white, hexapetalous, radiated within the Compass of a Coriander-seed, with oval Petals, and nine Chives with their Apices, disposed in such a manner, that three of them press upon the Style, and are surrounded by the rest in a Circle, which are each of them

separated by small yellow carnos soft Tubercles, loosely growing to the Umbilicus. The Flower, as the Calyx grows to it, is succeeded by a Berry, which, when ripe, is of a black Purple, and shining, of the Size of a large Pea, in a manner turbinated, with a soft purplish Pericarpium, and tasting like Camphire mixed with Cloves. The Kernel within is of the Size of a Pepper-corn, cover'd with a black shining Rind, bifid, oleous, and insipid; and grows in the Western Parts of Japan, and the adjacent Islands, to the Largeness of the Linden-tree. *Kampf. Amœnitates exoticæ. Breyn. Cent. 1.*

The *Camphora Officinarum*, or *καμψη*, is not mentioned by the ancient Greeks, and was first introduced into the *Materia Medica* by the Arabians. It is a Substance of a singular Nature, dry, friable, powder'd with Difficulty, light, white, pellucid, resembling the Crystals of Salts, of an acrid and somewhat bitteish Taste, and of a penetrating Smell, highly disagreeable to some. It flames in an open Fire, and, when kindled, burns till it is totally consumed. It also burns in Water, and sends up a thick dark-coloured Smoak, which produces a blackish Soot. When put into a pure Glass Vessel, with an Alembic fitted to it, it melts by the Force of the Fire, ascends in the Alembic, and concretes again in the Form of Camphire, not in the least changed. This Phenomenon may be observed by those who try the Experiment frequently. In a moderately warm Air it gradually wastes, and flies off, unless it be kept in close Glass Vessels, by which means it may be preserved for some Years. In all pure Oils, and inflammable Spirits, it perfectly dissolves; as it does also in Alcohol of Wine, being mixed with it in nearly equal Quantities, in which Case it looks very clear and pellucid, and is extremely odoriferous; and, being distill'd, comes over almost intirely, with the Alcohol, or soon after it, in an homogeneous Liquor. The Camphire does not evaporate after a Solution, before its Menstruum is exhaled, and therefore may be well preserved in these Liquors. Alcohol, in which Camphire has been dissolved, being kindled, the Camphire is not kindled nor consumed, before all the Alcohol, whose inflammable Elements are of a more subtile Nature, is entirely burnt and wasted; after which the Camphire, which is collected at the Bottom of the Vessel, begins to burn, yielding a more strong, white, bright, and vibrating Flame than the Alcohol, together with a black Smoak of the Taste and Smell of Camphire, and leaving no Fœces at the Bottom of the Vessel. Concentrated Oil of Vitriol dissolves Camphire into a thick Liquor, of a reddish-yellow Colour, and void of Smell. Camphire is dissolved also in Aqua-regia, and Spirit of Salt; and, being put into fuming Spirit of Nitre, is dissolved without Noise, or any remarkable internal Agitation or Incalcescence, and even without any Vapour. It is dissolved also in Aqua-fortis, the Acid of the Spirit of Nitre receiving no Alteration thereby; for this Solution, which is like Oil, is still fit to dissolve Silver or Mercury. When Camphire has been dissolved in Oil of Cinnamon, this Oil, which before would make an Effervescence, attended with Flame, if mix'd with fuming Spirit of Nitre, now loses this Property. Camphire, dissolved in a Fluid, is revived, and floats on the Surface of the Menstruum, by an Addition of Water, or of an alkaline Salt. Camphire is not dissolved in aqueous and alkaline Menstruums; nor in the mild and gentle Acids of Vegetables, such as Vinegar. Many celebrated Chymists have taken Camphire for a solid volatile oleous Salt, form'd like the *Offa Helmontiana*, of a saline and an oleous Principle; but this Sentiment is contradicted by other Authors. I think we may, with *Boerhaave*, affirm it to be a highly perfect, most simple, and volatile Resin; or an Oil of a solid Form and Consistence. But it is a kind of heteroclit Resin; for there is no other Resin known, which can be entirely sublimed dry, without leaving any Fœces, and without undergoing a Change as to its Parts, or which, being kindled, burns away entirely, without leaving any Earth or Ashes. *Hoffman* seems to favour this Opinion, when he affirms, that Camphire is, as it were, a distill'd Oil in a dry Form, or a most subtile volatile Oil, which seems to have in its Composition a certain subtile Acid, to which its solid Form is owing, and of which it may be deprived, if it is mix'd with Salt of Tartar, and subjected to Distillation with highly rectified Spirit of Wine; for in this Case a Spirit is yielded, whose Taste and Smell discover it to be sufficiently saturated with the Corpuscles of the Camphire, and which, when pour'd into Water, does not become milky; nor is any of the Camphire precipitated, as happens with camphorated Spirit of Wine. What remains after the Drawing off the Spirit, is a pretty well saturated Solution of Camphire, but of a brownish Colour, and in Taste highly resembling Camphire. But when it is dropp'd into Water, it does not run into a thick Coagulum, like camphorated Spirit of Wine, but may commodiously and easily be mixed with the Water; for the Salt of Tartar, entering into the most intimate Texture and Composition of this Substance, dissolving the oleous and thick Parts, and inducing a Change on the more subtile Acids, occasions a Resolution of this Substance into highly subtile Parts, not afterwards to be coagulated; and the Change of its Colour from White to Brown is owing to the Sulphur or phlogistic

phlogistic Principle being disentangled, and set at Liberty, by the Alkali, *Hoffm. Obs. Phys.* We are confirm'd in the Truth of Camphire's being a pure inflammable Oil in a solid Form, by this Circumstance, that in very hot Climates, and even sometimes in *Europe*, aromatic Substances are often heated to such a Degree, that their Oils are converted into Camphire, as happens in the Distillation of the Oil of Anise, Cardamoms, Caraway, Fennel, Laurel, Zedoary, Cinnamon, Southernwood, and Thyme. The same Phenomenon is sometimes observed to happen, when these Oils, dropping thro' a long narrow or cold Worm, form themselves into a solid kind of Mass, which blocks up the Cavity of the Worm, but may be again dissolved by Heat, *Boerh. Chym. Vol. 2.* But because these camphorated Substances want either the Hardness, the Smell, or the other Properties of the common Camphire of the Shops, we shall only here treat of that Camphire which is produced by the *Arbor Camphorifera*, and which is called the *Camphora Japonensis*, or *Camphora Sinensis*. This Substance is extracted from the Root of the Tree, in the following manner:

They cut the Root into small Pieces, which they put into large Pans over a moderate slow Fire: They pour a small Quantity of Water on the Root, and adapt a Head to each Pan, wove of Twigs, like a Bee-hive. The external Surface of this Head is smooth like a Mat, but its internal Surface is somewhat rougher, by reason of the small Twigs of which it is made. By this means the Camphire is carried up or sublimed, adheres to the Filaments, and, when cold, assumes a whitish Colour, and is taken off. *Boerh. Obs. Nat.*

Seba gives us the following Method of obtaining it: The Inhabitants of *Japan*, says he, form elegant small Cakes of the Roots of these Trees.

What remains of the Root or Wood, together with the small Twigs, they cut down into Pieces about an Inch long. These are put into an Iron or Brass Kettle, full of Water, and boiled for forty-eight Hours. Upon these Kettles they fix Covers, which, like Alembics with rising hollow Necks, receive the Camphire raised with the Vapours; and, when it is cold, it is taken out, and kept for Use.

The Furnaces in which these large and broad Kettles are lodged, ought to be built of hard Stone, to have a Vent for the Smoke at the Top, and, below, a Cavity for the Reception of Wood or Fire. The Camphire, thus prepared by Sublimation, is made up into large smooth orbicular Cakes, and transported into *Europe*. This is called the *Camphora rudis*, which, when more refined by a subsequent Sublimation, is called *Camphora elaborata*, or refined Camphire. This Kind, depurated and reduced to an orbicular Form by the *Dutch*, is what is commonly used in the Shops. This crude Camphire is depurated in two Manners, either by Water, or by highly rectified Spirit of Wine. The Method of doing it by Water, is,

To put the crude Camphire into a Still, pour Water upon it, adapt a Head to it, and a Receiver. In Distilling, the Camphire adheres to the upper Part, whilst the Impurities remain at the Bottom.

By highly rectified Spirit of Wine it is thus depurated:

The Spirit of Wine, pour'd upon the crude Camphire, dissolves it entirely, and leaves the Impurities in the Bottom; and this Spirit, impregnated with the Camphire, is to be distil'd from a Glass Cucurbit. The Camphire left in the Bottom is to be raised by increasing the Degrees of the Fire, and so gather'd.

The same highly rectified Spirit of Wine serves very well again for the same Process.

When the Camphire is thus depurated, it is reduced by Colliquation in a Sand-heat, in small Phials close stopp'd with Clay, and covered with the Sand, into orbicular Cakes, like those sold in the Shops; for when a due Degree of Fire is applied to it, it flows like Wax, and, when cold, coagulates firmly in the Bottom, and assumes the Shape convey'd to it by the inferior Part of the Glass: Then, having warm'd the Glass a little, the Cake of Camphire may be separated.

If Camphire, when put upon hot Bread, becomes moist, it is a Sign of its being good and genuine; but if it becomes dry, it is a Proof of its being bad and spurious. When it is mark'd with reddish or blackish Spots, these are said to be produced by handling it with impure Hands, or to be the Effects of Moisture; but this is easily prevented by gathering it in a Linen Cloth, and immersing it in warm Water, with an Addition of Soap and Lemon-juice. Thus, when it is well wash'd, let it be dried in a shady Place, by which means it becomes white.

Formerly it was the Custom, in order to prevent the Exha-

lation and Diminution of Camphire, to keep it in Lint-feed, the Seeds of Fleawort, or some others of a like Nature, which, by their large Quantity of Oil, might, as it were, entangle the volatile Parts of the Camphire, and prevent their flying off. Others think, that the same Effect is produced by Pepper; but what has induced them to entertain this Notion, is somewhat hard to determine. The best Method of preserving Camphire is to anoint its Surface with fresh express'd Oil of sweet Almonds; for its Pores being by this means block'd up, its subtle and more volatile Parts will not so readily fly off, as they would otherwise do. But there is no great Necessity for Methods of this Kind, since it may be well enough kept in a Glass Vessel closely stopp'd, in order to prevent the Action of the open Air upon it. *Alt. Havn. Vol. 1. Obs. 53.*

Some Authors also make mention of a Species of Camphire called *Camphora Borneana*, which consists of small Pieces or Grains, and which *Salmasius* called crude, natural, or simple Camphire, calling that artificial which was whiten'd by the Force of Fire, and made up into Cakes, like that of *Japan*. They also affirm, that, in the Island of *Borneo*, they gather it in two different Manners from the *Arbor Camphorifera*, which is there smaller than in *Japan*; for it either sweats spontaneously from the Tree in Grains, or they take it from the Wood itself, especially towards the Bark, in its proper and natural crystalline Appearance, as *Boerhaave*, in his *Chym. Vol. 2.* expresses himself. When they know, that a Tree abounds, and is, as it were, turgid with Camphire, they cut it down into small Portions, which they cleave, and expose to the Sun, in order to be dried. When they are sufficiently dried, they break them into small Pieces, and, taking out the Camphire, pass it thro' a Sieve, in order to purge it from its Sordes. If they find pretty large Pieces of the Camphire, they rub their Eyes gently with them. This *Bornean* Camphire is said to differ very much from that of *Japan*, which is extracted by the Fire; for the former is more clear and transparent than the latter, nor does it evaporate and fly off like that of *Japan*. One Pound of the *Bornean* Camphire is sold for an hundred times as much as an equal Quantity of the other; and, among the *Japanese*, *Bornean* Camphire is more esteem'd than the Root *Genseng*; for they ascribe the same Virtues to Camphire as to this precious Plant, and use it in all their Decoctions, *Bacone*, and *Valent. Mus.* But *Newman*, doubting whether Camphire can be obtain'd in any other Manner than by Distillation, suspects the Truth of this Tradition about the Camphire of *Borneo*, and concludes, that this Species of Camphire is so rare, that no one hitherto has, nor perhaps ever will have, an Opportunity of seeing it. What we, therefore, know concerning the Virtues of Camphire, is to be understood of the common Camphire of the Shops, or the *Japan* Camphire.

Camphire, then, is applied to various Uses; for it is employ'd in artificial Fires, not only because it burns in Water, when kindled, but because it sends up a white and odorous Flame. It also serves for making a liquid Phosphorus, if, to one Grain of *English* Phosphorus, made of Urine, we add ten Grains of Camphire: After these are separately well triturated in a Mortar, they are to be mix'd; by which means the entire Camphire becomes highly lucid, and, when dissolved in Oil of Cloves, makes a liquid Phosphorus, with which the Flesh, the Skin, the Hairs, and Cloaths, may be anointed, without any Hurt or Fear of Inflammation. Camphire is also used by Painters in the Composition of their Varnishes, which, when camphorated, defend the Pieces on which they are laid from Insects. Furriers put Camphire between their Skins, in order to prevent their being spoiled by Moths. The *Indians* mix Camphire with acrid and aromatic Substances, of which they form Troches for promoting a Discharge of the Saliva, when chew'd. Because Camphire was, in former Ages, thought to be possess'd of cold Qualities, it is said to have been given to be chew'd, and smell'd to, by the Monks, in order to extinguish Inclinations to Venery. But the Falsity of this Opinion is now sufficiently known, *Scalig. Exerc. Tachen. Hipp. Brown's Vulgar Errors*. For as Camphire consists of highly volatile Parts, it is found to possess Virtues highly penetrating, discutient, resolvent, stimulating, corroborating, alexipharmac, and proper for resisting Putrefaction; but it does not act in a strong and drastic manner, because it does not remain long in the Parts into which it has penetrated, but is soon after exhaled. One Instance is sufficient for proving the Truth of this Hypothesis, and *Tralles* furnishes us with a very memorable one in the Histories of the *Bressau* Diseases, where we have an Account of "a Girl who "not only had her Skin deformed with scorbutic Blotches, but "had also a large red Tumor on her Hand, whose Roots ex- "tended themselves to her Arm. She had the Bezoartic Pow- "der of *Wedelius* exhibited in a diaphoretic Portion, with "Nitric, and a little Camphire, as also Oil of sweet Almonds, "with Camphire; upon which these terrible Symptoms abated "very considerably; her Inflammation, which tended to a "Gangrene, was discuss'd; and, what is principally remarka- "ble, the Sweat, excited by the Use of the camphorated Medi- "cine,

"cines, smell'd strong of the Camphire, from which Circum-
 stance we may easily infer its penetrating Virtue." As for
 its alexipharmac Quality, when used internally, against the
 Wounds of Serpents, see *Eph. N. G. D. 2. a. 7.* The No-
 tion of its being possessed of a cold Quality may have possibly
 been owing to the Observation of its cooling Effects in Inflam-
 mations of the Eyes and Burns; for it is not only of singular
 Service in removing external Inflammations, but also such as
 are internal, and which threaten a Sphacelus and Death, if they
 are severe, and especially if they are seated in the membranous
 Parts. For answering these Intentions it is most happily exhi-
 bited with Nitre. For this Reason, in continued Fevers, which
 generally have something of an inflammatory Nature in them,
 as also in other Kinds of Inflammations, in Pleurifies, Phren-
 sies, Quinsies, and Inflammations of the Uterus, the celebrated
Hoffman made great and successful Use of Camphire, with an
 Addition of Bezoardic Powders. Immediately after the Ex-
 hibition of this Medicine, the burning Heat, the Delirium, the
 Thirst, and the Watchings, were greatly abated. *Stahl*, some-
 where in his Works, calls Camphire the Subduer of all Inflam-
 mations. The learned *Werthofius*, in acute Fevers, Phrensies,
 and Deliriums, found very happy Effects arising from three or
 four Grains of Camphire, taken every two Hours, in nitrous
 Emulsions. *Com. Lit. A. 1734.* The learned *Tralles* has,
 in a Treatise wrote on Purpose, excellently demonstrated the
 refrigerating and antiphlogistic Qualities of Camphire; and how
 efficacious it is, in Conjunction with Nitre, in a Pleurisy, he
 informs us, in his Work *De Remediis Terreis*, in the following
 Words: "I have with Pleasure and Surprize observed the happy
 Effects of this Medicine in Pleurifies; and I am, from re-
 peated Proofs of its Success, so convinc'd of its Efficacy, that
 after opening a Vein once, twice, or thrice, applying To-
 pics to the Side affected, ordering the Patient to take fre-
 quent Draughts of tepid Infusions sweetened with Honey,
 and injecting antiphlogistic Clysters, I scarce use any other
 Medicine than twelve or fifteen Grains of Nitre reduc'd to
 Powder, with one, two, or three Grains of Camphire, and
 an Emulsion of Oil of sweet Almonds, to be taken after
 each Dose; and I am sufficiently certain, that if these do
 not cure the Disease, it may be pronounced incurable." According to *Capuccius*, an Italian Physician, the Virtues of
 Camphire are very great, both in curing and preventing pete-
 chial Fevers; and for this Purpose one or two Grains of it may
 be either chew'd and swallowed by itself three or four times a
 Week, unless the State of the Patient renders a more frequent
 Use of it necessary; or it may be made up with other Sub-
 stances in the following manner:

Take of the Powders of Cretan Dittany, and yellow Sanders,
 each half a Scruple; of Camphire, two Grains; of Con-
 serve of Roses, or of Borage, or some other Conserve of
 a like Nature, as much as is sufficient for making into a
 Bolus. Or,

Take of the Powder of Zedoary-root, one Scruple; five
 Lemon-seeds; and one Grain of Camphire: Mix them
 together, and let them be taken in any manner. *Portius*
de Militis in Castris Sanitate tuenda.

Graanen, a celebrated Dutch Physician, in a Phrensy and
 Madness, recommends the following Powder:

Take of Sal Prunellæ, fifteen Grains; of Camphire, four or
 five Grains; of Laudanum Opiatum, half a Grain: Mix
 up into a Powder.

In a Pleurisy and Peripneumony he also highly extols Cam-
 phire, with Spirit of Nitre, or Nitre itself, and the Water of
 red Poppies. In Inflammations of the Kidneys he recommends
 twelve Grains of Sal Prunellæ, mixed up with four Grains of
 Camphire. For allaying Thirst in continued Fevers, he
 orders three Grains of Camphire to be added to proper Powders;
 which Medicine, with the *Bezoardicum Minerale*, he also com-
 mends in pestilential Fevers. In the *Philosophical Transactions*
 we have some Instances of Maniacs cur'd by half a Dram of
 Camphire exhibited in Form of a Bolus, Morning and Evening.
Sethi, from *Rhazes*, informs us, that Camphire cures the most
 acute Disorders, Pains of the Head arising from Heat, and In-
 flammations, especially those of the Liver.

Tachenius informs us, that *Avicenna* was the first of the prac-
 tical Physicians who observed the Virtues of Camphire in acute
 Disorders, and call'd it the *Theriaca contra Venena Calida*, or
 the Theriaca against hot Poisons.

Du Verney thinks Camphire exhibited in cordial Potions an
 excellent Remedy against the Head-ach in malignant Fevers,
 and tells us, that he himself frequently prescrib'd it for that In-
 tention. *Du Hamel. Hist.*

Mindererus, in his Work *De Peste*, ranks Camphire among
 the strongest Antidotes against the Plague; and affirms, that
 it is more efficacious than any of the Bezoardic Preparations,
 Vol. II.

as it prevents Putrefaction; and expels the poisonous Effluvia.
 He makes mention of a celebrated Powder ascrib'd to *Hellius*,
 which is successfully used by many, and has acquir'd a great Re-
 putation in the Hospitals. The Method of preparing this Pow-
 der is as follows:

Take of Sugar-candy, three Drams; of white Ginger, two
 Drams; and of Camphire, one Dram: Make up into a
 Powder.

The Dose of this Powder is one Dram, to be taken in some
 proper Liquor, such as Marigold-water, or the Waters of Sca-
 bious, or Nuts; or if 'tis wanted somewhat stronger, the com-
 pound Water of Burdock may be used. But it is most commo-
 diously exhibited in a Decoction of Tansy, prepared with equal
 Parts of Sorrel or Dandelion Water, and Vinegar: But I would
 substitute Zedoary or Burnet in the room of the Ginger. These
 are the Words of *Mindererus*. *Follinus* calls this Composition
Pulvis Pauperum, or the Powder of the Poor, because it may
 be prepared at a small Expence, but possess uncommon Virtues.
 But the last-mentioned Author, instead of the Sugar-candy,
 uses Sugar of Roses, in the same Proportion. He also directs the
 Powder to be mixed with Wine, and suffer'd to ferment for a
 considerable time; he prescribes, with *Mindererus*, one
 Dram in Rose or Sorrel Water; but for Prevention, only half
 a Dram. *Riverius* thinks this Powder of *Mindererus* too hot,
 on account of the Ginger; for which Reason he composed the
 following, in Imitation of it; and asserts, that he used it with
 Success in pestilential Fevers.

Take of the Bezoardicum Minerale, three Drams; of Sal
 Prunellæ, two Drams; and of Camphire, half a Dram:
 Mix them together.

The Dose is one Dram, to be exhibited with Water of Car-
 duus Benedictus, or some other proper Liquor.

During the Plague which rag'd in the Year 1623. *Hartman*
 used the following antipestilential Water with great Success.

Take of the best Spirit of Wine, one Pint; of Camphire,
 one Ounce; of oriental Saffron, one Scruple: When these
 are dissolv'd in the Spirit of Wine, it assumes a Colour
 like that of Gold, and two or three Spoonfuls of it may be
 given for a Dose.

Hoffman, in all putrid Disorders, and in the Plague at its
 Accession, and about its Crisis, recommends Camphire to be
 given in an acid Vehicle: For Instance,

Take of the Waters of Sorrel and Carduus Benedictus, each
 an Ounce; of the Bezoardicum Minerale, half a Dram;
 of Camphire, six Grains; of the Syrup of Lemon-juice,
 one Ounce: Mix all together for one Dose.

After the same Author has given the Preference to Camphire
 above all other Medicines, against that viscid Putrefaction and
 Malignity conveyed by impure Coition to the Lymph and vital
 Juices, and afterwards to the solid Parts and Bones, he goes
 on thus: "This I can from Experience affirm, that in a Go-
 norrhœa, or beginning Lues, no Medicine affords a more
 present Relief than Camphire; for this Reason 'tis properly
 added to those balsamic Essences and Elixirs against a Gonor-
 rhœa, which are prepared of Opobalsam, Balsam of Capivi,
 Balsam of Tolu, Resin of Aloes-wood, and Gum Guaiacum,
 with tartaris'd Spirit of Wine; for the Camphire wonder-
 fully heightens the Virtues of these Ingredients, and is of
 singular Efficacy in strengthening the Tone of the Glands,
 and carrying off dangerous Stagnations."

In dangerous and terrible Hemorrhages, especially such as
 accompany malignant Fevers, as also in Spittings of Blood
 arising from internal Causes, such as Spasms of the Viscera,
 Camphire is of singular Service. Upon this Account the *Pulvis*
Raygeri has acquired a great Reputation. It is composed of

Choice Myrrh and Frankincense, each an Ounce; of Saf-
 fron, fifteen Grains; and of Camphire, one Dram and an
 half.

This Powder is to be sprinkled twenty or thirty times with
 Frog's-spawn Water; but it is to dry spontaneously after each
 sprinkling. The Dose is one Scruple.

In Vomiting of Blood *Riverius*, after Venesection, orders
 half a Scruple of Camphire to be exhibited in four Ounces of
 Oxycrate, or Plantain-water. *Joubert* affirms of his Master
Rondeletius, that in all Vomiting of Blood, especially those
 proceeding from acrid Defluxions, he successfully used Camphire,
 and sometimes gave a whole Scruple of it diluted in a Glass of
 Spring-water, with a little Vinegar.

Hurnius, in his Notes to *Hippocrates*, *Aphor. 50. Sect. 5.* In
 immoderate Discharges of the Menies, recommends the follow-
 ing Powder:

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phlogistic Principle being disentangled, and set at Liberty, by the Alkali, *Hoffm. Obs. Phys.* We are confirm'd in the Truth of Camphire's being a pure inflammable Oil in a solid Form, by this Circumstance, that in very hot Climates, and even sometimes in *Europe*, aromatic Substances are often heated to such a Degree, that their Oils are converted into Camphire, as happens in the Distillation of the Oil of Anise, Cardamoms, Caraway, Fennel, Laurel, Zedoary, Cinnamon, Southernwood, and Thyme. The same Phenomenon is sometimes observed to happen, when these Oils, dropping thro' a long narrow or cold Worm, form themselves into a solid kind of Mass, which blocks up the Cavity of the Worm, but may be again dissolved by Heat, *Boerb. Chym. Vol. 2.* But because these camphorated Substances want either the Hardness, the Smell, or the other Properties of the common Camphire of the Shops, we shall only here treat of that Camphire which is produced by the *Arbor Camphorifera*, and which is called the *Camphora Japonensis*, or *Camphora Sinenfis*. This Substance is extracted from the Root of the Tree, in the following manner :

They cut the Root into small Pieces, which they put into large Pans over a moderate slow Fire : They pour a small Quantity of Water on the Root, and adapt a Head to each Pan, wove of Twigs, like a Bee-hive. The external Surface of this Head is smooth like a Mat, but its internal Surface is somewhat rougher, by reason of the small Twigs of which it is made. By this means the Camphire is carried up or sublimed, adheres to the Filaments, and, when cold, assumes a whitish Colour, and is taken off. *Boccone, Obs. Nat.*

Seba gives us the following Method of obtaining it : The Inhabitants of *Japan*, says he, form elegant small Cakes of the Roots of these Trees.

What remains of the Root or Wood, together with the small Twigs, they cut down into Pieces about an Inch long. These are put into an Iron or Brass Kettle, full of Water, and boiled for forty-eight Hours. Upon these Kettles they fix Covers, which, like Alembics with rising hollow Necks, receive the Camphire raised with the Vapours ; and, when it is cold, it is taken out, and kept for Use.

The Furnaces in which these large and broad Kettles are lodged, ought to be built of hard Stone, to have a Vent for the Smoak at the Top, and, below, a Cavity for the Reception of Wood or Fire. The Camphire, thus prepared by Sublimation, is made up into large smooth orbicular Cakes, and transported into *Europe*. This is called the *Camphora rudis*, which, when more refined by a subsequent Sublimation, is called *Camphora elaborata*, or refined Camphire. This Kind, depurated and reduced to an orbicular Form by the *Dutch*, is what is commonly used in the Shops. This crude Camphire is depurated in two Manners, either by Water, or by highly rectified Spirit of Wine. The Method of doing it by Water, is,

To put the crude Camphire into a Still, pour Water upon it, adapt a Head to it, and a Receiver. In Distilling, the Camphire adheres to the upper Part, whilst the Impurities remain at the Bottom.

By highly rectified Spirit of Wine it is thus depurated :

The Spirit of Wine, pour'd upon the crude Camphire, dissolves it entirely, and leaves the Impurities in the Bottom ; and this Spirit, impregnated with the Camphire, is to be distil'd from a Glass Cucurbit. The Camphire left in the Bottom is to be raised by increasing the Degrees of the Fire, and so gather'd.

The same highly rectified Spirit of Wine serves very well again for the same Process.

When the Camphire is thus depurated, it is reduced by Colliquation in a Sand-heat, in small Phials close stopp'd with Clay, and covered with the Sand, into orbicular Cakes, like those sold in the Shops ; for when a due Degree of Fire is applied to it, it flows like Wax, and, when cold, coagulates firmly in the Bottom, and assumes the Shape convey'd to it by the inferior Part of the Glass : Then, having warm'd the Glass a little, the Cake of Camphire may be separated.

If Camphire, when put upon hot Bread, becomes moist, it is a Sign of its being good and genuine ; but if it becomes dry, it is a Proof of its being bad and spurious. When it is mark'd with reddish or blackish Spots, these are said to be produced by handling it with impure Hands, or to be the Effects of Moisture ; but this is easily prevented by gathering it in a Linen Cloth, and immersing it in warm Water, with an Addition of Soap and Lemon-juice. Thus, when it is well wash'd, let it be dried in a shady Place, by which means it becomes white.

Formerly it was the Custom, in order to prevent the Exha-

lation and Diminution of Camphire, to keep it in Lint-feed, the Seeds of Fleawort, or some others of a like Nature, which, by their large Quantity of Oil, might, as it were, entangle the volatile Parts of the Camphire, and prevent their flying off. Others think, that the same Effect is produced by Pepper ; but what has induced them to entertain this Notion, is somewhat hard to determine. The best Method of preserving Camphire is to anoint its Surface with fresh express'd Oil of sweet Almonds ; for its Pores being by this means block'd up, its subtile and more volatile Parts will not so readily fly off, as they would otherwise do. But there is no great Necessity for Methods of this Kind, since it may be well enough kept in a Glass Vessel closely stopp'd, in order to prevent the Action of the open Air upon it. *Aët. Havn. Vol. 1. Obs. 53.*

Some Authors also make mention of a Species of Camphire called *Camphora Borneana*, which consists of small Pieces or Grains, and which *Salmasius* called crude, natural, or simple Camphire, calling that artificial which was whiten'd by the Force of Fire, and made up into Cakes, like that of *Japan*. They also affirm, that, in the Island of *Borneo*, they gather it in two different Manners from the *Arbor Camphorifera*, which is there smaller than in *Japan* ; for it either sweats spontaneously from the Tree in Grains, or they take it from the Wood itself, especially towards the Bark, in its proper and natural crystalline Appearance, as *Boerhaave*, in his *Chym. Vol. 2.* expresses himself. When they know, that a Tree abounds, and is, as it were, turgid with Camphire, they cut it down into small Portions, which they cleave, and expose to the Sun, in order to be dried. When they are sufficiently dried, they break them into small Pieces, and, taking out the Camphire, pass it thro' a Sieve, in order to purge it from its Sordes. If they find pretty large Pieces of the Camphire, they rub their Eyes gently with them. This *Bornean* Camphire is said to differ very much from that of *Japan*, which is extracted by the Fire ; for the former is more clear and transparent than the latter, nor does it evaporate and fly off like that of *Japan*. One Pound of the *Bornean* Camphire is sold for an hundred times as much as an equal Quantity of the other ; and, among the *Japaneſe*, *Bornean* Camphire is more esteem'd than the Root *Genseng* ; for they ascribe the same Virtues to Camphire as to this precious Plant, and use it in all their Decoctions, *Boccone*, and *Valent. Mus.* But *Newman*, doubting whether Camphire can be obtain'd in any other Manner than by Distillation, suspects the Truth of this Tradition about the Camphire of *Borneo*, and concludes, that this Species of Camphire is so rare, that no one hitherto has, nor perhaps ever will have, an Opportunity of seeing it. What we, therefore, know concerning the Virtues of Camphire, is to be understood of the common Camphire of the Shops, or the *Japan* Camphire.

Camphire, then, is applied to various Uses ; for it is employ'd in artificial Fires, not only because it burns in Water, when kindled, but because it sends up a white and odorous Flame. It also serves for making a liquid Phosphorus, if, to one Grain of *English* Phosphorus, made of Urine, we add ten Grains of Camphire : After these are separately well trituated in a Mortar, they are to be mix'd ; by which means the entire Camphire becomes highly lucid, and, when dissolved in Oil of Cloves, makes a liquid Phosphorus, with which the Flesh, the Skin, the Hairs, and Cloaths, may be anointed, without any Hurt or Fear of Inflammation. Camphire is also used by Painters in the Composition of their Varnishes, which, when camphorated, defend the Pieces on which they are laid from Insects. Furriers put Camphire between their Skins, in order to prevent their being spoiled by Moths. The *Indians* mix Camphire with acrid and aromatic Substances, of which they form Troches for promoting a Discharge of the Saliva, when chew'd. Because Camphire was, in former Ages, thought to be possess'd of cold Qualities, it is said to have been given to be chew'd, and smell'd to, by the Monks, in order to extinguish Inclinations to Venery. But the Falsity of this Opinion is now sufficiently known, *Scalig. Exerc. Tuchen. Hipp. Brown's Vulgar Errors.* For as Camphire consists of highly volatile Parts, it is found to possess Virtues highly penetrating, discutient, resolvent, stimulating, corroborating, alexipharmac, and proper for resisting Putrefaction ; but it does not act in a strong and drastic manner, because it does not remain long in the Parts into which it has penetrated, but is soon after exhaled. One Instance is sufficient for proving the Truth of this Hypothesis, and *Tralles* furnishes us with a very memorable one in the Histories of the *Breslau* Diseases, where we have an Account of " a Girl who " not only had her Skin deformed with scorbutic Blotches, but " had also a large red Tumor on her Hand, whose Roots extended themselves to her Arm. She had the Bezoartic Powder of *Wedelius* exhibited in a diaphoretic Portion, with " Nitre, and a little Camphire, as also Oil of sweet Almonds, " with Camphire ; upon which these terrible Symptoms abated " very considerably ; her Inflammation, which tended to a " Gangrene, was discuss'd ; and, what is principally remarkable, the Sweat, excited by the Use of the camphorated Medicines,

"cines, smell'd strong of the Camphire, from which Circum-
 stance we may easily infer its penetrating Virtue." As for
 its alexipharmac Quality, when used internally, against the
 Wounds of Serpents, see *Eph. N. C. D. 2. a. 7.* The No-
 tion of its being possessed of a cold Quality may have possibly
 been owing to the Observation of its cooling Effects in Inflam-
 mations of the Eyes and Burns; for it is not only of singular
 Service in removing external Inflammations, but also such as
 are internal, and which threaten a Sphacelus and Death, if they
 are severe, and especially if they are seated in the membranous
 Parts. For answering these Intentions it is most happily exhi-
 bited with Nitre. For this Reason, in continued Fevers, which
 generally have something of an inflammatory Nature in them,
 as also in other Kinds of Inflammations, in Pleurifies, Phren-
 sies, Quinsys, and Inflammations of the Uterus, the celebrated
Hoffman made great and successful Use of Camphire, with an
 Addition of Bezoardic Powders. Immediately after the Ex-
 hibition of this Medicine, the burning Heat, the Delirium, the
 Thirst, and the Watchings, were greatly abated. *Stahl*, some-
 where in his Works, calls Camphire the Subduer of all Inflam-
 mations. The learned *Werlhofius*, in acute Fevers, Phrensies,
 and Deliriums, found very happy Effects arising from three or
 four Grains of Camphire, taken every two Hours, in nitrous
 Emulsions. *Com. Lit. A. 1734.* The learned *Tralles* has,
 in a Treatise wrote on Purpose, excellently demonstrated the
 refrigerating and antiphlogistic Qualities of Camphire; and how
 efficacious it is, in Conjunction with Nitre, in a Pleurisy, he
 informs us, in his Work *De Remediis Terreis*, in the following
 Words: "I have with Pleasure and Surprize observed the happy
 Effects of this Medicine in Pleurifies; and I am, from re-
 peated Proofs of its Success, so convinc'd of its Efficacy, that
 after opening a Vein once, twice, or thrice, applying To-
 pics to the Side affected, ordering the Patient to take fre-
 quent Draughts of tepid Infusions sweetened with Honey,
 and injecting antiphlogistic Clysters, I scarce use any other
 Medicine than twelve or fifteen Grains of Nitre reduc'd to
 Powder, with one, two, or three Grains of Camphire, and
 an Emulsion of Oil of sweet Almonds, to be taken after
 each Dose; and I am sufficiently certain, that if these do
 not cure the Disease, it may be pronounced incurable." According to *Capuccius*, an Italian Physician, the Virtues of
 Camphire are very great, both in curing and preventing pete-
 chial Fevers; and for this Purpose one or two Grains of it may
 be either chew'd and swallowed by itself three or four times a
 Week, unless the State of the Patient renders a more frequent
 Use of it necessary; or it may be made up with other Sub-
 stances in the following manner:

Take of the Powders of Cretan Dittany, and yellow Sanders,
 each half a Scruple; of Camphire, two Grains; of Con-
 serve of Roses, or of Borage, or some other Conserve of
 a like Nature, as much as is sufficient for making into a
 Bolus. Or,

Take of the Powder of Zedoary-root, one Scruple; five
 Lemon-seeds; and one Grain of Camphire: Mix them
 together, and let them be taken in any manner. *Portius*
de Militis in Castris Sanitate tuenda.

Graanen, a celebrated Dutch Physician, in a Phrensy and
 Madness, recommends the following Powder:

Take of Sal Prunellæ, fifteen Grains; of Camphire, four or
 five Grains; of Laudanum Opiatum, half a Grain: Mix
 up into a Powder.

In a Pleurisy and Peripneumony he also highly extols Cam-
 phire, with Spirit of Nitre, or Nitre itself, and the Water of
 red Poppies. In Inflammations of the Kidneys he recommends
 twelve Grains of Sal Prunellæ, mixed up with four Grains of
 Camphire. For allaying Thirst in continued Fevers, he
 orders three Grains of Camphire to be added to proper Powders;
 which Medicine, with the *Bezoardicum Minerale*, he also com-
 mends in pestilential Fevers. In the *Philosophical Transactions*
 we have some Instances of Maniacs cur'd by half a Dram of
 Camphire exhibited in Form of a Bolus, Morning and Evening.
Sethi, from *Rhazes*, informs us, that Camphire cures the most
 acute Disorders, Pains of the Head arising from Heat, and In-
 inflammations, especially those of the Liver.

Tachenius informs us, that *Avicenna* was the first of the prac-
 tical Physicians who observed the Virtues of Camphire in acute
 Disorders, and call'd it the *Theriaca contra Venena Calida*, or
 the Theriaca against hot Poisons.

Du Verney thinks Camphire exhibited in cordial Potions an
 excellent Remedy against the Head-ach in malignant Fevers,
 and tells us, that he himself frequently prescrib'd it for that In-
 tention. *Du Hamel. Hist.*

Mindererus, in his Work *De Peste*, ranks Camphire among
 the strongest Antidotes against the Plague; and asserts, that
 'tis more efficacious than any of the Bezoardic Preparations,
 VOL. II.

as it prevents Putrefaction, and expels the poisonous Effluvia.
 He makes mention of a celebrated Powder ascrib'd to *Hellius*,
 which is successfully used by many, and has acquir'd a great Re-
 putation in the Hospitals. The Method of preparing this Pow-
 der is as follows:

Take of Sugar-candy, three Drams; of white Ginger, two
 Drams; and of Camphire, one Dram: Make up into a
 Powder.

The Dose of this Powder is one Dram, to be taken in some
 proper Liquor, such as Marigold-water, or the Waters of Sea-
 bious, or Nuts; or if 'tis wanted somewhat stronger, the com-
 pound Water of Burdock may be used. But it is most commo-
 diously exhibited in a Decoction of Tansy, prepared with equal
 Parts of Sorrel or Dandelion Water, and Vinegar: But I would
 substitute Zedoary or Burnet in the room of the Ginger. These
 are the Words of *Mindererus*. *Follinus* calls this Composition
Pulvis Pauperum, or the Powder of the Poor, because it may
 be prepared at a small Expence, but possess uncommon Virtues.
 But the last-mentioned Author, instead of the Sugar-candy,
 uses Sugar of Roses, in the same Proportion. He also directs the
 Powder to be mixed with Wine, and suffer'd to ferment for a
 considerable time; he prescribes, with *Mindererus*, one
 Dram in Rose or Sorrel Water; but for Prevention, only half
 a Dram. *Riverius* thinks this Powder of *Mindererus* too hot,
 on account of the Ginger; for which Reason he composed the
 following, in Imitation of it; and asserts, that he used it with
 Success in pestilential Fevers.

Take of the Bezoardicum Minerale, three Drams; of Sal
 Prunellæ, two Drams; and of Camphire, half a Dram:
 Mix them together.

The Dose is one Dram, to be exhibited with Water of Car-
 duus Benedictus, or some other proper Liquor.

During the Plague which rag'd in the Year 1623. *Hartman*
 used the following antipestilential Water with great Success.

Take of the best Spirit of Wine, one Pint; of Camphire,
 one Ounce; of oriental Saffron, one Scruple: When these
 are dissolv'd in the Spirit of Wine, it assumes a Colour
 like that of Gold, and two or three Spoonfuls of it may be
 given for a Dose.

Hoffman, in all putrid Disorders, and in the Plague at its
 Accession, and about its Crisis, recommends Camphire to be
 given in an acid Vehicle: For Instance,

Take of the Waters of Sorrel and Carduus Benedictus, each
 an Ounce; of the Bezoardicum Minerale, half a Dram;
 of Camphire, six Grains; of the Syrup of Lemon-juice,
 one Ounce: Mix all together for one Dose.

After the same Author has given the Preference to Camphire
 above all other Medicines, against that viscid Putrefaction and
 Malignity conveyed by impure Coition to the Lymph and vital
 Juices, and afterwards to the solid Parts and Bones, he goes
 on thus: "This I can from Experience affirm, that in a Go-
 norrhœa, or beginning Lues, no Medicine affords a more
 present Relief than Camphire; for this Reason 'tis properly
 added to those balsamic Essences and Elixirs against a Gonor-
 rhœa, which are prepared of Opobalsam, Balsam of Capivi,
 Balsam of Tolu, Resin of Aloes-wood, and Gum Guaiacum,
 with tartaris'd Spirit of Wine; for the Camphire wonder-
 fully heightens the Virtues of these Ingredients, and is of
 singular Efficacy in strengthening the Tone of the Glands,
 and carrying off dangerous Stagnations."

In dangerous and terrible Hemorrhages, especially such as
 accompany malignant Fevers, as also in Spittings of Blood
 arising from internal Causes, such as Spasms of the Viscera,
 Camphire is of singular Service. Upon this Account the *Pulvis*
Raygeri has acquired a great Reputation. It is composed of

Choice Myrrh and Frankincense, each an Ounce; of Saff-
 ron, fifteen Grains; and of Camphire, one Dram and an
 half.

This Powder is to be sprinkled twenty or thirty times with
 Frog's-spawn Water; but it is to dry spontaneously after each
 sprinkling. The Dose is one Scruple.

In Vomitings of Blood *Riverius*, after Venesection, orders
 half a Scruple of Camphire to be exhibited in four Ounces of
 Oxycrate, or Plantain-water. *Joubert* affirms of his Master
Rondeletius, that in all Vomitings of Blood, especially those
 proceeding from acrid Defluxions, he successfully used Camphire,
 and sometimes gave a whole Scruple of it diluted in a Glass of
 Spring-water, with a little Vinegar.

Hearnius, in his Notes to *Hippocrates*, *Aphor. 50. Sect. 5.* In
 immoderate Discharges of the Menstrues, recommends the follow-
 ing Powder:

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Take

Take of the Seeds of white Henbane, and of white Poppy, each one Dram; of Blood-stone, and red Coral, each half a Dram; and of Camphire, half a Scruple: Let the Patient take half a Dram of this Powder, Morning and Evening.

The celebrated *Craanen*, in Hæmorrhages of the Nose, highly recommends the following Powder:

Take of Sal Prunellæ, one Scruple; of Camphire, between three and five Grains; of Laudanum Opiatum, one Grain. Or,

Take of *Armenian Bole*, and Terra Sigillata, each fifteen Grains; and of Camphire, four Grains.

But Camphire, when mixed with Nitre, is of the greatest Efficacy in all Hæmorrhages. Besides, nothing is found more useful in promoting the accustomed Evacuations of Blood than Camphire, especially when exhibited in Conjunction with balsamic and antispasmodic Specifics.

Take, for Instance, of the fresh Essences of Myrrh and Amber, each half a Dram; of the Essences of Saffron and Castor, each two Drams; and of Camphire, half a Dram: Mix all together.

This Medicine frequently used about the time of Menstruation is greatly extol'd by *Hoffman*, provided Venesection and Purgings are premised. In *Commer. Lit.* for the Year 1734. we are inform'd, that Camphire is of singular Service in a Suppression of the Lochia. Camphire is also of Service in cold Fevers, if exhibited before the Paroxysm, against the Flatulencies of hypochondriacal and hysterical Patients, and in Cases where the Tone of the Stomach and Intestines is destroy'd.

Take, for Example, of the Tincture of Tartar, of the Essence of Orange-peel, and of dulcify'd Spirit of Nitre, each two Drams; of Camphire, ten Grains: Mix all together, and give between fifty and sixty Drops, every two Hours.

But if the Spasms should be very violent, a proper Quantity of the Essence or Extract of Castor may be added to it. Or,

Take of Crabs-eyes, diaphoretic Antimony, and depurated Nitre, each one Dram; of Camphire, half a Scruple; and of Oil of common Chamomile, or Yarrow, six Drops: Mix up into a Powder, the Dose of which is half a Dram.

The Efficacy of Camphire against Spasms we learn from a memorable Case in *Hoffman*. A Man subject to hypochondriac Disorders, and their concomitant Spasms, through Mistake, took two Scruples of Camphire dissolv'd in Oil of Olives. This Dose was succeeded by a Vertigo, a Coldness of the Extremities, a small and very languid Pulse, Uneasiness about the Præcordia, a cold Sweat of the Head, Alienation of Mind, and a preternatural Drowsiness. But, soon after, his Body became hot, a plentiful Sweat broke out, his Urine was more red, and his Pulse became quicker; after this, by the Injection of an eccoprotic Clyster, the Patient was freed from the spasmodic Contractions of his Breast and Oesophagus, and recovered a perfect State of Health. Hence we may justly infer the antispasmodic Virtue of Camphire, and conclude, that its heating Qualities are not so strong as some represent them. The same *Hoffman* gives a Caution against taking too large Doses of Camphire, and affirms, that two Grains of it are sufficient for one Dose, and can produce no bad Consequences. The Use of Camphire is also recommended against Disorders of the Urinary Bladder, such as a Dysury and Strangury. It is also of Service not only where a strong, corroborating, and stimulating Medicine is required to remove a putrid Matter lodg'd in the Bladder or Urethra, but also in Cases where there is a Stone form'd. For these Intentions Powder of Cantharides is exhibited with some Grains of Camphire, which corrects the violent caustic Quality of the Cantharides, and prevents dangerous Inflammations; for 'tis observ'd, that Camphire not only mitigates and corrects the Violence of the more drastic Diuretics, which abound with a corroding Salt, but it is also a very proper Corrector to the strong and acrid Purgatives, which act by a like caustic and acrid Salt; for all Cathartics, by the Addition of a little Camphire, some time before they are used, acquire a far more mild and gentle Nature than they formerly had. From what has been said 'tis obvious, that Camphire may very properly be used internally in a great many Cases. But we must not forget, that some Cases entirely forbid its Use, or at least demand great Restrictions and Limitations in its Exhibition; for it has been observed, that, by a liberal and constant Use of Camphire, fat People, and such as abound with Serum, have been extenuated

and rendered leaner. Camphire must therefore be of a drying Quality. Upon this drying Quality depends the Injury it does to the Sense of Smelling, an Instance of which we have in an Apothecary, who, by frequently preparing and handling Camphire, first perceiv'd his Sense of Smelling weaken'd, and at last entirely destroy'd. *Barthol. H. A. Cent. 4. Hist. 91.* Camphorated Medicines must of course be highly improper in dry Constitutions, for Disorders where Dryness prevails, and in Cases where the Patient is costive. Accordingly *Stenzelius de Ven. L. 3.* justly asserts, "That if Camphire is exhibited to a Man labouring under a Penury of gelatinous Juices, and in whom the Matter necessary for the Secretion of the Seed is already defective, it is not to be wonder'd at, if after its Use Venereal Abilities should languish. But Camphire possesses no specific Power of preventing the Secretion of the seminal Fluid, the Erection of the Penis, or the Powers of Generation and Conception, as is thought by many, who, for that Reason call it the *Ligatura*, and the *Vinculum Veneris*." When the Vessels of the Body are fill'd and distended with good Juices, which is call'd a Plethora, and especially when the redundant Blood is carried in too large a Quantity to the Head, which is testified by the red and tumid State of the Face, a heavy Pain of the Head, a Vertigo, Torpor, and Drowsiness; as in this Case all volatile and stimulating Substances are injurious, especially when exhibited in large Doses, it follows of course, that Camphire must be so too. For Experience has taught us, that by an unwary Use of it Oppressions of the Præcordia have been produc'd, Head-achs increased, and all the other Disorders excited, which generally arise from the Humours being render'd too turgid, and thrown into violent Commotions, such as Apoplexies, Convulsions, and Epilepsies.

Wedelius, de Medicam. Facultat. justly observes, that Camphire is of singular Efficacy in promoting the brisk and lively Motion of the Blood, and must consequently be improper, when that Fluid is too much rarefy'd, or put into an Ebullition, since by that very Means the Watching, the Thirst, and Heat, would be increased. *Mindererus* is of Opinion, that Camphire ought never to be exhibited to such as have infirm Heads, or weak Stomachs. Hence it is, that studious and sedentary People, and Women of delicate Constitutions, who cannot bear strong Smells, have a thorough Aversion to Camphire; and these latter, by the Use of it, fall into hysterical Fits, to which, however, it puts a Stop in more hardy and robust Constitutions. With Women, therefore, of fine and tender nervous Systems, as also with the Studious, and those whose Spirits are easily dissipated, we must deal very cautiously, since for such Constitutions Camphire appears to be too generous a Medicine, strikes the Brain too forcibly, and throws the Spirits into too violent Commotions. *Etmuller. Alberti Disputatio de Camphoræ circumspecto Usu Medico.* But where no Circumstances contraindicate the Use of Camphire internally, it may be safely exhibited, provided the Dose is not too large, and especially when the Use of it is to be continued for some time. *Mindererus* seldom prescribes above two or three Grains for a Dose: And except it be in Cases which require a great and sudden Resolution by an Increase of Motion all at once, in robust Bodies, which can bear a considerable Quantity, as are those of Maniacs, a small Dose is always safer than a larger; the safest Way, however, of taking it is with Nitre. But because it is difficult to pulverize, a Drop or two of Spirit of Wine is usually added to it, instead of which may very well be substituted some simple Water; it may also conveniently enough be reduced to a Powder by means of a Grater. *Job. Bobu Dissertationes Chymico-physicæ.*

If it is to be taken in aqueous Mixtures, you are first to pound it, and work it with dry'd and blanch'd Almonds, which are to be more than equal in Quantity to the Camphire; or it may be beat up with the Yolk of an Egg, taking two Scruples of Camphire for one entire Yolk.

We now come to consider the external Uses of Camphire, and the Medicines named from it. Some put a Grain or two of it into a rotten Tooth, and even use it as a Gargarism in the Tooth-ach. The famous *Seba* recommends the following as a most safe and approved Remedy in all Ambustions:

Make a Solution of Camphire in six times the Quantity of Spirit of Earth-worms made with highly rectify'd Spirit of Wine, and dipping therein a Linen Rag, apply it to the Part affected, continuing the Use thereof till the Pain ceases, and the Ulcers are dry'd up.

If the Ambustion has deeply penetrated, and laid the Place open, he orders a Pound of what they call Ointment of Cerus to be mixed with a Solution of two Ounces of Camphire, in Oil of St. John's-wort, and this Mixture to be apply'd. *Philosoph. Transaction abridg'd, and Ephemerides Naturæ curiosorum, Vol. 1. App. p. 13.*

Camphire worn as an Amulet has been experienced an effectual Remedy against Fevers. See the *Miscellanea Curiosa Medico physica Academia Naturæ Curiosorum. J. Boecklerus* gives the following Account of it: "Some hang Camphire about their

“ their Necks for the Cure of an intermittent Fever ; the Camphire is sure to fly away, but the Fever very often remains.” However, this I dare assert, that Camphire hung about the Neck in pestilential Times, so as that the Effluvia may be received into the Nostrils, is no improper Preservative, because it corrects the Atmosphere of the Body, and so prevents the ill Effects of the contagious Air.

Camphire is an usual Ingredient in Ointments and Plaisters, for the sake of its Stimulus, which is of Service in mollifying and discussing hard Tumors, and also opens a Way for the Virtues of the other Ingredients to penetrate deeper through the Pores of the Skin. *Freind*. When it is to be mixed for a Plaister, the best Way, as *Etmuller* advises, is to dissolve it with Balsam of Peru, as you find it done, for Example, in the *Emplastrum Samaritanum vulnerarium domesticum*, found among the Arcana Cnoelliana, in the *Ephemerides Med. Physicæ Germanicæ*, Decas 1. An. 6. App. p. 179. But it is of no Service in ulcerous Disorders, as *Hoffman* observes, though it be excellent for Tumors. “ However,” says that excellent Author, “ some good Effect may be expected from a Mixture of equal Quantities of Essence of Saffron, and camphorated Spirit of Wine, poured upon a Linen Cloth, and, the Spirit being evaporated, apply’d warm.” He is speaking of an Ulcer of a malignant Kind in the inner Parts of the Lip. See *Frid. Hoffmanni Consultationes & Responsa*, Tom. 1. p. 381. Camphire externally apply’d, either in Powder, or dissolv’d in Spirits impregnated with Saffron, has a noxious and repellent Effect in arthritic and erysipelatous Affections, according to the same Author. That the external Use of Camphire is hurtful in the Tinea and Achors, we are inform’d in the *Ephemerides Germanicæ*, Dec. 3. An. 9. App. p. 18. The *Unguentum album camphoratum* is the *Unguentum album*, with an Addition of Camphire ; it is of an emollient and discutive Virtue, and is apply’d where Heat is immoderate, or the Cuticle abraded, to pruriginous Tetters and Ambuitions. *Hen. Schulzii Prælectiones*. An Ounce and an half of fresh Butter, washed several times with the Water of Eyebright, a Dram and an half of prepared Tutty, together with a Dram of Camphire, make a Composition which has been successful against Redness and Pustules of the Eyes. *Ephemerides Germanicæ*, Dec. 3. An. 5. Ob. 19. The *Emplastrum camphoratum Dni. Archiatri Stahl*, in the *Dispensatorium Regale et Electorale Borussæ-Brandenburgicum*, is made of Oil of Olives, Red-lead, and Camphire, and is effectual for the same Purposes as the *Unguentum album camphoratum*. The *Emplastrum camphoratum* of the *Pharmacopœia Bateana* is compounded of three Parts of Camphire, two Parts of Balsam of Tolu, and six Parts of Galbanum ; it is directed to be apply’d to the Navel in hysteric Fits, the Vertigo, and such-like Disorders.

A Water of Camphire, according to the Account given us by the *Arabians*, distils from the Tree which produces the Camphire ; but *Garcias* observes it to be a Fable. Others therefore call by this Name the Water in which kindled Camphire has been immersed, and recommend it to be drank by Women labouring under Hysterics. A Water of this Kind is prescribed in the *Pharmacopœia Pauperum*, under the Title of *Julapium Camphoratum*. *Horstius* relates, that some Virgins taken with a *Furor uterinus* met with most Relief by using for their ordinary Drink Water or Beer in which kindled Camphire had been quenched. *Bartholini Epistolæ medicinales*, Cent. 3. Camphorated Spirit of Wine is that in which Camphire has been dissolved ; half an Ounce of Camphire, to a Pint of highly rectify’d Spirit of Wine, is the common Proportion ; but the *London* and *Edinburgh* Dispensatories direct an Ounce of Camphire. The Solution is promoted either by stirring the Vessel, or by digesting it a little. It is a very common Topic in Contusions, Luxations, Rheumatisms, and Cases which require Discussion ; for it readily dissolves the Stagnations of the Humours in different Parts of the Vessels, and causes them to exhale, or puts them in Motion ; whence it is of extraordinary Service not only in all Pains and Tumors, but in all inflammatory and erysipelatous Affections, restores Warmth to the Feet and Hands benumb’d with Cold, mitigates the Pain of the Hæmorrhoids, prevents a Gangrene, and is commonly apply’d in Cases of a beginning or confirmed Putrefaction, a Sphacelus, fetid Ulcers, and Wounds, which are putrid, or inclining to Putrefaction ; as also the Cholera Morbus, the Colic, and the Contraction or Resolution of the Nerves consequent thereon, and the like Affections both of the internal and external Parts. It may also be given internally to the Quantity of twenty Drops or more, where Diaphoretics are required. But as *Hen. Schulzius*, in his *Prælectiones*, well advises, “ We ought to be very cautious of abusing so beneficial a Remedy by an imprudent Application of it, which may be very pernicious ; for the Spirit of Wine easily penetrates the Pores of the Skin, and speedily coagulates the Lymph, rendering it as unfit for Motion, as the White of an Egg when harden’d by Heat, whence an Exulceration must necessarily be the Consequence. Hence it follows, that this Spirit ought not to be applied whenever there is a Collection of Humours just

“ under the Cuticle, as in the Erysipelas, unless it be with this Caution, that the Linen Cloths, moisten’d with this Spirit, be suffer’d to hang in the open Air, or near a Pan of live Coals, till the Spirit being evaporated, nothing but the Camphire, in the Form of little Flakes of Snow, be left sticking on the Cloths. It is improper also to apply this Spirit where-ever the solid Fibres are too rigid and contracted, and by that means are the Occasion of Pain, as in Ambuitions and Combuitions.” Camphorated Spirit of Wine, with an Addition of Saffron, is called *Spiritus Vini Camphoratus Crocatus*, or *Elixir Camphoræ Hartmanni*. If Myrrh and Aloes be dissolved in camphorated Spirit of Wine, or if the Essences of Myrrh and Aloes be saturated with Camphire, the Medicine is called, and really is, *Spiritus Vini camphoratus contra Gangrænam*, “ camphorated Spirit of Wine against a Gangrene.” Camphire precipitated from camphorated Spirit of Wine by Affusion of Water is called *regenerated Camphire*, and, mixed with a little Oil of Roses, makes an excellent Cosmetic against Freckles or Pustules in the Face. *Tachenius* prepares it by pouring common Water upon a Solution of Camphire in Aquafortis. Alcohol of Wine distilled with Camphire is the most penetrating and volatile of all camphorated Spirits of Wine, being good against Gangrenes, antiseptic, drying, diaphoretic, and, with respect to the Blood and Serum, a Styptic ; but perhaps not so agreeable to the exposed Nerves, as being too great a Drier. Upon an Affusion of Water, the Camphire with which it was distilled separates from the Spirit ; but when the Camphire has been distilled with Alcohol of Wine, and an Addition of Salt of Tartar, the Spirit of Wine, however mix’d with Water, will not part with the Camphire. Hence it is, that it is of excellent Use in Physic and Surgery, because it may be intimately mixed with aqueous Vehicles and Menstruums without Precipitation, and is a very proper Ingredient in Collyriums, Epithems for the Head, Cataplasms, and Gargarisms. A little of this Solution mixed with the Water of Elder-flowers, or of the Flowers of Sage or Rose-water, and a Portion of Nitre, makes an excellent Gargarism for an Inflammation of the Mouth and Fauces. *Fred. Hoffmanni Observationes Physico-chymicæ*. “ A celebrated Physician,” says *Schulzius*, in his *Prælectiones*, “ often administers this Spirit, mixed with two Thirds of Tincture of Antimony, in malignant Fevers, and he himself takes two Drams of it now-and-then for a Preservative. I have seen the same given with Success in an obdurate Sciatica, and Pain of the Os Sacrum. In this Distillation the Camphire ascends in crystal Flowers, which this Physician often gives inwardly, being mixed with Powders suited to the various Intentions which are to be answer’d, with very good Success.” Perhaps *Quercetan*, Tom. 2. p. 788. had in View this camphorated, tartarified Spirit of Wine, when he says, that the Extract of Camphire is made with tartarified Aqua Vitæ. In *Maets’s Chymia Rationalis* it is called *Elixir Camphoræ*, or *Spiritus camphoratus*, which is thus described :

Take of the most subtile Spirit of Wine, prepared with frumentaceous Grain, because this is more of an anodyne Nature, twelve Ounces ; Camphire, three Ounces ; Salt of Tartar very well calcined, two Ounces : Mix and distil them in *Balneo Mariæ*. Pour the distilled Spirit again on the Camphire, which is left behind, and give it another Distillation, repeating it seven times, and keep the Spirit which comes off last for Use.

The Author thus describes its Virtues. “ It produces,” says he, “ stupendous Effects in the Tooth-ach, Head-ach, Palsy, Apoplexy, wandering Gout, Gout in the Feet, and all cold Affections. The following Liniment is made thereof :

“ Take of *Venetian Soap*, two Ounces ; distilled Oil of Castor, one Dram ; Oil of Earth-worms, two Drams ; of the aforesaid camphorated Spirit, three Drams : Mix, and make them up to the Consistence of a Liniment. If it is required to be more penetrating, add a Dram or two of Spirit of Sal Ammoniac, and make it into a Liniment for the Palsy, or Apoplexy, or such-like Disorders.

“ For Affections of the Head the following Preparation is recommended :

“ Take of Spirit of Wine distilled upon cephalic Herbs, one Ounce ; of the aforesaid camphorated Spirit, one Dram ; of the Water of Rosemary, three Ounces : Mix them.

“ Some Drops of this Mixture drawn up the Nostrils will give immediate Ease in the Head-ach or Tooth-ach. Observe that the Water of the Rosemary mitigates the other Ingredients, and that its Strength is augmented or diminished in proportion to the Quantity of the Rosemary-water.” Thus far *Maets*. In the *Collectanea chymica Leydensia* you have the same things express’d *verbatim*, under the Name of *Le Mort*, with

with an Addition of the following Words: "A Bit of Cotton is to be moisten'd with the cephalic Spirit of Wine, and the Spirit of Camphire mixt as above, and put into the Ears; taken up the Nostrils, it cures Dimness of Sight; the Juice of Daifies being at the same time instil'd into the Eye." Besides these, in the Places before quoted, there is another *Elixir Camphoræ*, which is thus prepared:

Take of Camphire, half an Ounce; highly rectify'd Spirit of Wine, three or four Ounces; Salt of Tartar, two Drams; Oil of Cloves, six Drops; Oil of Anise, ten Drops; Mix, and distil them to a Dryness. Return the Spirit upon the Fæces, and distil it off again; let the Spirit thus drawn off be tinctur'd with a Dram of Saffron, and reserv'd for Use. Let the Spirit of Wine be very well rectify'd, that it may be qualify'd for the immediate Reception of the Camphire into its Pores. The oftener the Cohobation is repeated, the more is the Camphire volatilized, and the Elixir render'd the more penetrating.

It is diaphoretic and anodyne, and as such is used in most cold or hot Diseases with very good Success; it promotes the Operation of all Sudorifics. Externally it is of wonderful Efficacy in all cold Affections; it cures the Head-ach, Tooth-ach, Pains of the Ears, and Vertigo, in a surprising manner, if some Drops of it be mixed with a double Quantity of Water of Marjoram, and taken up the Nostrils. Internally it is given from two to eight Drops. *Le Mort*, in his *Chymia Medico-physica*, shews how to make an *Elixir Camphoræ* without Salt of Tartar, as follows:

Take two Ounces of Camphire, with twenty Ounces of Alcohol of Wine prepared of frumentaceous Grain: Mix them together, and distil them by a Retort in *Balneo Mariæ*; cohobate them four or five times upon the same Camphire, till the Camphire begins to be volatilized, and the Spirit is very much impregnated with it; to this Spirit add half an Ounce of Saffron; two Drams of Opium; and of Mace, and Nutmegs, each three Drams: Digest them in Horse-dung for six or seven Days; after which, let the tinctur'd Spirit separated from the Fæces be reserv'd by the Name of an *Elixir*. If a milder Elixir be desired, add to the Alcohol of the preceding Wine an Ounce or two of highly rectify'd Spirit of Nitre, with which the Camphire does not directly avoid uniting, but by its Mediation is reduced into a Liquor like an Oil, by a bare Affusion, and a slight Maceration, in the following manner:

Take of Camphire, one Dram; of very strong Spirit of Nitre, two or three Drams: Let them stand in a small Degree of Heat for an Hour and an half, by which means all the Camphire is reduc'd to an oily Liquor, which swims on the Spirit of Nitre; this Liquor, being depriv'd of the nitrous Spirit, returns back again into Camphire. Repeated Cohobations are made upon the Camphire, that the Spirit may be very well impregnated with the most volatile Parts of the Camphire, and to avoid giving the Mixture so ungrateful a Taste, as it would have had, if Camphire in Substance were only dissolved in it. But if any should think fit to digest Camphire in Substance with the other Simples, they may do as they please; but with this Caution, that they take no more than half at most of the Camphire which is required in Distillation, after the preceding manner. A very good Elixir may also be obtained from it thus:

Take of Camphire, Myrrh, Saffron, each half an Ounce; of Contrayerva-root, Cloves, each one Ounce; of Opium, one Dram; of Alcohol of Wine distilled upon Wood of Sassafras, twenty Ounces: Mix, and digest them in Horse-dung for six or seven Days; after which, separate the Liquor which swims at the Top from the Sediment, and reserve it for Use.

Both the preceding Medicines are excellent Anodynes and Sudorifics, give wonderful Relief in contagious and pestilential Distempers, resist Poisons and Putrefaction, and take off the Sense of Pain. The Dose is from two to twenty Drops. Thus far *Le Mort*. A simple Solution of Camphire, made by a Digestion in eight times the Quantity of Spirit of Wine, is also called *Elixir camphoratum*, of which twenty Drops at most are a Dose, being taken in Wine, or some cordial Water, with an Intention of provoking Sweat, of strengthening, of resisting the Malignity of the Air, and Poisons, of giving Relief under the Gout, or any Affections of the Brain. A few Drops of it upon Cotton are very proper to put into a hollow Tooth to ease the Pain. *Charas Pharmacopæia Regia, Galenica, & Chymica*. In *Schroeder's Pharmacopæia*, and *Sala's Opera Medico-chymica*, we meet with the *Essentia Camphoræ alexiteria Stenzelii*, which is made by dissolving Camphire with Oil of sweet Almonds by

Digestion, then distilling the strained Liquor, after it has been for some time circulated with Spirit of Wine, in order to draw off the Spirit of Wine, and at last giving the Residuum a Gold-colour, by an Addition of a sufficient Quantity of Tincture of Saffron. It is recommended for preventing and curing the Pestilence, and for Hysterics and Fevers. The Dose is one or two Drops. The Spirit drawn off, if used, will be found possess'd of as many Virtues as the other. *Frid. Hoffman*, in his *Clavis Schroederiana*, shews a Way to improve this Essence, thus:

Take of distilled Oils of Juniper-berries, one Ounce; of white Amber, one Dram; of Lemons, two Drams; of Angelica, half a Dram; of Camphire, a Dram and an half: Dissolve them in *Balneo Mariæ*, and then add of liquid Extracts of Zedoary, and Angelica, each one Dram; of *Austrian Saffron*, half a Scruple: Mix them together.

The anti-colic Essence of Camphire he describes as follows:

Take of the distilled Oils of Orange-peel, an Ounce and an half; of Zedoary, half an Ounce; of Camphire, one Dram: Dissolve them in *Balneo Mariæ*, and then add of liquid Extracts of Zedoary, and Wormwood, each two Drams. Digest them, and keep them for Use.

Some call *Flowers of Camphire* that very subtle Substance, which first ascends in the subliming of Camphire, and compound *Flowers of Camphire* what is obtained by subliming the Flowers of Benzoin, mix'd with eight times the Quantity of Camphire; and these perhaps may do good Service in dissolving, upon Occasion, a mucous tenacious Blood obstructing the Bronchia.

Trochisci de Camphora Mesuæ, in the *Pharmacopæia Augustana*, and the *Antidotarium Florentinorum*, and *Bononiense*, are composed of refrigerating, heating, and mucilaginous Simples, mixed with a small Quantity of Camphire. They are commended in burning Fevers, and where Heat requires to be moderated; and also for the Yellow-jaundice, Phthisis, and hectic Fever. The Dose is as far as two Scruples, in Clysters two Drams. In the *Pharmacopæia Parisiensis* these Troches are made of fewer Ingredients, with some Difference also in the Quantities. *Lemery*, in his *Pharmacopée Universelle*, recommends, to hysterical Women, the *Trochisci de Camphora reformati*, which are thus prepared:

Take of Camphire, one Ounce; of Myrrh, Asa-fœtida, Castor, each half an Ounce; of Spikenard, three Drams; of Saffron, one Dram; of Opium, half a Scruple; of Oil of Amber, eight Drops: Pulverize what may be reduced to Powder, and, mixing them all together, make them into Troches, with a sufficient Quantity of Mucilage of Gum Tragacanth, made with Water of Neverfew. The Dose is from half a Scruple to half a Dram.

The *Electuarium Camphoratum*, in the *Dispensatorium Brandenburgicum*, ascribed to *Keglerus* by *Schroeder*, and *Lemery*, contains, besides Camphire, Aromatics, Theriaca Andromachi, Nux Vomica, Absorbents, Astringents, and Sugar. It is commended for its alexipharmic and antihysterical Virtues; and the Dose is from one to two Drams, but it is very seldom used. I should rather chuse the *Electuarium Camphoratum* of *Gemma's* Prescription, which he asserts, from his own and his Father's Experience, to be very effectual in the Cure of the Pestilence. It is thus compounded:

Take of Camphire, one Part; white Ginger, two Parts; Sugar of Roses, four Parts; Wine, as much as is sufficient; mix them carefully, and make an Electuary. The Dose is one Dram; and let the Patient be cover'd up, and sweat after taking it. See *Diemerbroeck de Peste*.

Many have endeavour'd to find out and make the true, genuine, simple Oil of Camphire, that is, such an Oil as cannot be precipitated by Water, and so return to its former Substance of Camphire. Some, not without Reason, have doubted whether it could ever be obtained; for when Camphire is distill'd, it always rises dry, and never comes to a liquid Oil: When it is burnt, it is converted into a black Soot. For this Reason *Hoffman* declares, how much he is surpris'd at the mighty Pains and Labour of some eminent Chymists to extract the Oil of Camphire by Distillation, and all to no Purpose. "These cunning Torturers of Camphire, says he, were ignorant that it was itself already a volatile and distill'd Oil; and as it is ridiculous to pretend to extract an Oil out of distill'd Oils, since they are already such; so it is no less a Paradox to imagine, that a perfect Oil can be obtain'd from Camphire." Thus *Hoffman*, tho', in his Edition of *Poterius's* Works, he had before said, "That Camphire, after pretty often repeated Trials by Fire, with a particular kind of Earth, did at last afford

“ afford a small Quantity of pure Oil.” However, we ought to know by what Methods they have endeavour’d to discover this Oil, that we may not be ignorant of some celebrated Medicines, which thence take their Name. They dissolve Camphire in four times the Quantity of Oil of Turpentine; then distil it in a Glass Retort luted; and the Liquor which comes off by this Distillation they call the Oil of Camphire, which indeed contains in its Substance a Solution of Camphire, but cannot properly be called its Oil. It is, however, a surgical Remedy, and useful in cleansing Wounds and old Ulcers; and is also of Service in Caries of the Bones, cutaneous and scorbutic Affections, and the Scrophula; the Sciatica also, and Rheumatisms. Internally it is commended against Vapours, or hysteric Flatulencies. The Dose is from four to fifteen Drops; but it ought to be thus used with Prudence, for it heats and dries to a very considerable Degree. Others, for a Medicine against the Pestilence, dissolve one Part of Camphire in three Parts of distilled Oil of Amber or Rosemary, and give from six to eight Drops. Thus *Etmuller* tells us, that *Henisius*, a Physician of *Verona*, had an *Oleum pestilentiale*, of a Gold-colour, which was compounded of the distilled Oil of Camphire, Amber, and Lemon, which is good in pestilential Distempers, and was used by *Henisius*, when the Pestilence raged in *Verona*, with such extraordinary Success, that he had a triumphal Column erected to his Honour on this Account. From a Confidence in this Remedy, a certain Physician of *Norimberg* promises to cure any Person seized with the Pestilence, with a few Drops of Oil of Camphire, provided they are taken the same Day the Disease attacks the Patient; and offers to forfeit his Life, if any Person who takes some Drops of Oil of Camphire in the Morning should, during that Day, be visited by any pestilential Disorder. Mixed with other Medicines, it is very much commended in hysteric Cases. Oil of Camphire, with Musk, was used by *Prævotius*, a Physician of *Padua*, as a singular Remedy for Madness; and the following is recommended by *Paracelsus*, as a present Cure for the same Distemper:

Take of Oil of Camphire, one Dram; of Musk, half or an entire Dram; mix, and give half a Dram at a time.

Oil of Camphire is principally in request for its cosmetic Virtue; but instead of Oil of Camphire for external Uses, the best Way is to take Oil of Almonds in which Camphire is dissolv’d; it cannot, indeed, be radically dissolv’d, but returns to Camphire again when mixed with Water; however, it is a fit Medicine for the Tooth-ach, if applied to an aching Tooth, or put into a carious and hollow one. Others for outward Use prepare a compound Oil of Camphire, principally for cold Pains in the Joints, and the Colic; they mix well together equal Parts of *Venice Soap* and Camphire, and then drive it out of a Glass Retort, by making a Fire above and under it; what comes off spontaneously, dissolves into an Oil. See *F. Hoffman’s Clavis Schroederiana*. A certain Person made a Secret of an Antipestilential Liquor of Camphire, prepar’d of one Ounce of Camphire, and six Ounces of Whites of Eggs; these two he distilled by a Retort, and cohobated the Liquor which came off with Spirit of Wine; and this serv’d him for an elegant antipestilential Remedy. *Etmuller*.

Whether Camphire distilled with the White of an Egg comes off in a liquid Form, I am not certain; but I doubt it, since I know of no other Menstruums that will dissolve Camphire, besides oily and spirituous ones, and mineral Acids. In the *Dispensatorium Brandenburgicum*, the Method of obtaining Oil of Camphire by means of Whites of Eggs is as follows: The Whites, after they are well beaten, are distilled with the best Spirit of Wine, drawing off half the Spirit, and, to this adding the Camphire, they distil it over again. The extracted Spirit is in reality nothing but camphorated Spirit of Wine; so that it is justly said, in *Schulzius’s Praelectiones*, that there is nothing of Art more than ordinary in this Preparation; its Virtues you have above. The Oil of Camphire, which some search after (see *Pharmacopæia Antwerp. Aug. Arg. and Schroed.*) by distilling Camphire with triple its Quantity of Clay, or some solar Earth by a Retort, with an open Fire, and which is said to be the highest of Diaphoretics and Alexipharinacs in the Pestilence, both for Prevention and Cure, if given only in a few Drops, and is also recommended as a Cosmetic, and for its Virtue against a Gangrene, seems to be nothing but some Portion of Camphire dissolv’d in a vitriolic Acid, which is commonly found in solar Earths. The Process is said to be invented by the famous *Semertus*, and takes its Name from him. See *Semerti Institut. Med.* Nor have we any thing more than a Solution of Camphire in what is called the Oil of Camphire in the *Copenhagen Dispensatory*, which is prepar’d, by rubbing Camphire with common Salt, and Salt of Tartar, then with Milk reducing it to the Form of a Poultice, afterwards digesting it, and then distilling it with *Malmsey Wine* by a slow Fire. For the Spirit of Wine which comes off tartarified, is impregnated with the Solution of the

Camphire; but scarce seems to participate of the Acid of common Salt; therefore it is a Kind of tartarified camphorated Spirit, whose remarkable Virtues have been already specified. Whether that Oil of Camphire which takes its Name from *Kessler*, in the same Dispensatory; and is directed to be prepar’d by Sublimation till it is converted into an Oil, be possible to be obtain’d, let those answer who amuse themselves in the Search of an *Oleum Olei*. For my Part, I heartily agree in Opinion with the learned and most judicious *Charas*, who, in his *Pharmacopæia*, ingenuously professes his Sentiments in the following Manner: “ Those Authors, says he, who have written about the Distillation of Camphire, have, I think, exerted themselves to no Purpose; for having had the Vanity to hope, that they could invent and prepare something more perfect than what Nature had presented, seeing their Time and Labour lost, they endeavour’d to draw others into the same Error, and to that End publish’d such Accounts of Distillations, as were contrary to Experience. It is better, in my Opinion, not to attempt the Distillation of Camphire, since in its present State, as it is imported to us, for Purity, Subtility, Volatility, and a penetrating Virtue, it excels whatever can be got out of it by Distillation, after all the Care, Study, and Industry, which can possibly be used, and with all the Mixtures and Variety of Vessels that can be devis’d. Its Pellucidity, its Snow-like Whiteness, its acrid and pungent Taste, its highly penetrating Smell, its Volatility, quick Dissipation, remarkable Propension to kindle into Flames, even in Water, and entire Consumption without leaving the least Sign of Fæces in the Vessel where it was kindled, all evince its extraordinary Purity, and Fineness of Parts. Hence we may boldly assert, that whatever is produc’d from it by the Art of Chymistry, tho’ the best that can be expected, will fall short of that Purity and Perfection with which Nature has endow’d it; and that no gross Parts can be separated from it by chymical Means, but that it is upon all Accounts the better Way to let it remain in its native State without any Preparation, and not by violent Means to alter its good Qualities. For such will appear to be the Event of the Distillations propos’d by the Chymists, if justly examin’d, both on account of the necessary Dissipation of the greatest Part of the Camphire, and from Reasons drawn from the Nature of the Thing itself, which is the Subject of the Operation, from the Vessels, and even from the Fire which is directed to be used; and if you should propose to rectify what is drawn off by Distillation, what you will obtain by this means, will, in every respect, be inferior in Goodness to the Camphire in the State it was in before Distillation. For these Reasons I thought it not proper to give a Description of this Oil, since it is enough to say, that if any one is desirous of obtaining Oil of Camphire, or any oily Liquor of the same, he has no more to do than to dissolve Camphire in Oil of sweet Almonds, or in Spirit of Wine, or in Spirit of Turpentine. But simple Camphire alone, without any Preparation, has more Virtue than all these Liquors. Some make use of *Aqua-fortis*, or Spirit of Nitre, for the reducing Camphire into an oily Substance swimming on these Spirits. But such a Preparation is not much to be valu’d; for besides the Acrimony imparted to the Camphire by those corrosive Spirits which dissolve it, a considerable Quantity of their Particles insinuate themselves into it, whose Violence is to be suspected, especially if this Spirit is to be apply’d to internal Uses.” At present what is most in request for external Uses, in Caries of the Bones, for detaching sordid Wounds, for stopping the Progress of a Gangrene, and for easing the Tooth-ach, is the *Oleum Camphore vulgo dictum*, in the *Pharmacopæia Parisiensis*, which is prepar’d by dissolving Oil of Camphire in double the Spirit of Nitre, as mention’d from *Le Mort*. Some also recommend its internal Use in Obstructions and hysteric Flatulencies, given from six to ten Drops, especially if it be mixed with equal Parts of Oil of Amber, and a very small Quantity of the Essence of Castor. *Helvetius* uses this Oil, that is to say, a Solution of Camphire in an equal Weight of Spirit of Nitre very well dephlegmated, in the Preparation of his Tincture of Gold. His Method is to pour this Oil on a Solution of Gold in *Aqua Regia*, by which the Gold is precipitated, and a Liquor is obtain’d, consisting of Camphire, the Acid of Nitre, and *Aqua Regia*; perhaps it may also contain a small Quantity of Gold, if the Spirit of Nitre did not happen to be prepar’d of Nitre perfectly free from all common Salt, and consequently could not precipitate all the Gold dissolv’d in the *Aqua Regia*. He then separates the oleous Liquor which swims at the Top, and is a Solution of Camphire, and mixing it with rectify’d Spirit of Wine, and Oil of Cloves, digests them together. By this Method, he says, he obtains a Medicine both internal and external, of extraordinary Efficacy in a Multitude of Diseases. To save the Trouble of enumerating these, I shall call his Medicine a *Panacea*, a Title which the Modesty of the Author prevented him from bestowing on a Remedy which he com-

mends against so many and so great Diseases. See *Helvetius, Traité des Maladies*. But some perhaps will say, that Camphire dissolv'd in Spirit of Wine, and incorporated with some essential Oil, to which may be added on Occasion some *Spiritus Nitri dulcis*, will be altogether as good a Medicine, especially if prudent Regard be had not only to the State of the Disease, but to the Constitution of the Patient.

Enough has been said of the Nature and Virtues of Camphire, and of the various Medicines prepar'd of it. There remains only one Point to be consider'd, which may possibly raise some Scruples in the Minds of those who want Experience with respect to what has been deliver'd. We have shewn, that Camphire is not only qualify'd for curing external Inflammations, but that its Use is recommended in acute Distempers, for allaying the violent Heat and Orgasm of the Humors. Besides, the famous *F. Hoffman*, in his *Observationes Physico-chymicæ*, writes, That "a Scruple of Camphire dissolv'd in Oil of sweet Almonds, or Spirit of Wine, and given to a healthy Man, as we have often done, he says, by way of Experiment, produces no sensible Estuation in the Body, nor causes an Augmentation of the Pulse, which is the Evidence of a more intense Circulation of the Blood; but, on the contrary, not a few who have taken it, have felt a very sensible Refrigeration from it, especially about the Præcordia. And it neither occasions a Thirst, nor raises the Colour of the Urine, which are the Effects of all other hot Things. We may even go so far as to observe, that one Ounce of pretty generous Spirit of Wine raises a greater Estuation and Colour than one Dram of Camphire." Hence, not without Reason, may arise a Doubt whether it was not ill judg'd to contradict the Opinion which formerly prevailed, that Camphire was of a cold Nature. But that we had very good Reasons for excluding Camphire from the Class of Refrigerants, will appear, if we thoroughly consider its stimulating and drying Qualities, and that its Effect in refrigerating the Body is only secondary, that is, so far as it remedies Spasms of the solid Parts, by which Obstructions are promoted: Hence the Humours being impelled forwards, their Motion is increased to such a Degree as to overcome the Obstacle in the obstructed Place, and excite a Heat, which the same Motion allays by removing the Cause in resolving the Matter of the Obstruction. Mean while the Camphire, by virtue of the exceeding Fineness of its Parts, quickly makes its Way out of the Body through the Skin, and, by animating the inert and relaxed Fibres, opens a Passage for a free Course of the Blood, and restores Perspiration in an extraordinary manner, thereby eliminating all foreign and peccant Matter; for which Reasons Camphire deserves to be accounted the chief of Alexipharmacs. *Hoffman* therefore cannot be thought, by what he says in the before-mention'd Passage, to favour the justly abrogated Opinion of the cold Nature of Camphire. For, as *Breynius* observes, though in many Affections, as Inflammations of the Eyes, Erysipelas, feverish Heats, and other Disorders, it has a refrigerating Virtue, even so far, as oftentimes to dissipate the natural Heat, yet these are not the natural, but accidental Effects of Camphire, and are produced almost in the same manner, as the Inflammation of a burnt Part is resolv'd by holding it near the Fire, or the Flame of a Candle; or as the natural Heat is expelled outwards, or weaken'd inwardly, by an excessive Use of Pepper; and by that means the Temperament of the Body changed into cold, tho' Fire cannot on that Account be reckon'd a cold Element, nor Pepper a cold Fruit, unless it be in this respect, that cold Effects may in Length of Time be produced by them: And in the same manner Ice and Snow may be accounted not cold, but hot; because by frequent handling of them, the Hands are known to be inflamed. Thus *Breynius*. And therefore *P. Ammannus*, in his *Irenicum*, was in the right when he remarks on the old Saying, *Camphora per nares castrat odore mares*, "Camphire makes Eunuchs by its Smell;" that it was a Cretan Lye: But what he adds, "That those Monastics, or Religious, who daily chew it, use it rather for an Incensive, than Extinguisher of Lust," has as little Appearance of Truth, as if he had said, that those Religious chew Camphire, that they might temper and allay too brisk a Motion of the Blood, and too high a Colour, occasion'd by the Fervor of their Zeal in performing their Offices. But if we are resolv'd to find out some way to bring off the Antients in their asserting the cold Nature of Camphire, we must of Necessity either say, that Camphire is an Enemy to Procreation, if it be taken in large Quantities, as *Lanzoni* says after *Rhasis*, because it is injurious to the Body by its drying Quality; or else we must agree with *Salmasius* in affirming, that we are ignorant of the Camphire of the Antients. *Rieger*.

CAMPHORATA, Offic. *Camphorata hirsuta*, C. B. 486. Rati Hist. 1. 210. Hist. Oxon. 3. 614. *Camphorata Monspeliensium*, J. B. 3. 379. Chab. 454. *Camphorata major Adonspeliensium*, Park. 568. STINKING GROUND-PINE.

It is sometimes found in the Gardens of Botanists.

The Herb, which is used, is of a drying and astringent Quality, strengthening to the Nerves, and serviceable in the Gout, Convulsions, Palsy, Defluxions of the Eyes, and Catarrhs. The Plant is a Cephalic, is effectual for Wounds, according to *Lobelius*, and is prescribed by some in Dropsies. *Dale*.

It bears a great many woody, and somewhat hairy Branches, cover'd with fine Leaves, like those of Tamarisk, of a strong Smell, somewhat resembling Camphire. The Flowers are small and staminous, of four Leaves apiece, set on among the Leaves. It grows in the Southern Parts of France.

The Tops are used, though but rarely, and then only outwardly in Baths and Fomentations, for Disorders and Swellings of the Joints, for Cramps, Palsies, and other Affections of the Nerves. *Miller's Bot. Off.*

CAMPTER, καμπτήρ, from κάμπω, to bend, signifies in general any Flexure, or Incurvation, but in a special Sense is put for the Goal of a Race, and is so used by way of Metaphor in *Galen, Us. Part. Lib. 7. Cap. 14.* where he describes the recurrent Nerves of the sixth Pair, which arriving ἐν καμπτήρᾳ, "at the Goal," which is some firm and smooth Part of the Clavicle or first Rib-bone, turn round the same, and perform a sort of διαυλος, "backward Race."

CAMPTON, καμπτήρ, from the same Original with the precedent, signifies flexile, flexible, and that in general, from strait to curve, or curve to strait; or, in particular, it denotes only a Flexibility from strait to curve, in which Sense it is opposed to ευθύνην, which is applied to what is flexible from curve to strait.

CAMPYLON, καμπύλον, from κάμπω, is expounded by *Erotian* on *Hippocrates*, τὸ μὴ ἐρθὸν, ἀλλὰ σκολιῶς συγκεκκαμμένον, "what is not strait, but bent into a curve Line." It is a Word often used by *Hippocrates*: Thus in *Prognost.* ἢ δὲ καμπύλον γένηται βλέφαρον, "if the Eyelid be retorted." *Celsus, Lib. 1. Cap. 6.* renders the Word by *perversa*. So (*Lib. περὶ ἀρθρ.*) τὸ δ' ἄλλο ὅστις βραχίονος ἐστὶ τὸ ἐξω καμπύλον, "but the other Bone of the Arm is bent outwards." Again, in *Mochlico*, καμπυλωθεῖσαι δὲ πλευραὶ ἀνθρώπου εἰσι, "the Ribs of a Man are very much incurvated." Καμπύλα in *Hesychius* is expounded ἐπικαμπή, σρεβλά, "inflected, distorted."

CANABIL. A sort of medicinal Earth. See ERETRIA. *Castel.*

CANADELLA. A Kind of Sea-fish. See CHANNA. *Castellus.*

CANALICULUS, or CANALIS ARTERIOSUS. A Vessel between the pulmonary Artery and the Aorta in a Fœtus, which is obliterated in the Adult. Its Use is to convey the Blood, which in a Fœtus has no Passage through the Lungs, from the pulmonary Artery to the Aorta.

CANALIS, σωλήν, a Canal, signifies in general a round, hollow, oblong Instrument for the Conveyance of Fluids; in which Sense all the Vessels of the human Body, which serve for transmitting of any Fluid, are called Canals.

CANALIS is also a round, hollow Instrument in Surgery for embracing and holding a broken Limb, as a Leg or Thigh. It is made of the Wood of the Linden-tree, according to *Galen*, or of Earth, as *P. Ægineta* says; it may also be made of Reeds and Linen. There are various Sorts represented in *Scultetus's Armamentarium, Part. 1. Tab. 23.* *Hippocrates* treats of the Use of the Canalis, in his Second Book of Fractures, and in his Book of the Office of a Physician. *P. Ægineta, Lib. 6. Cap. 106. Celsus, Lib. 8. Cap. 10.*

CANALIS, in Anatomical Writers, is the middle Cavity, or Perforation, which extends through the Vertebrae of the Neck, and through which the Spinal Marrow reaches from the Brain. *Gorræus.*

CANALIS ARTERIOSUS is the same as CANALICULUS ARTERIOSUS.

CANALISCULUS. A Notch in a Piece of Wood. *Rundandus.*

CANANGÆ OLEUM. *Hoffman*, in his *Observat. Physico-chym.* mentions this as a very scarce Oil brought from India. And in his *Medicina Rat. Syst. Vol. 1. Sect. 2. Cap. 6.* he informs us, I think, that it is distilled in India, from the Flowers of the Lime-tree. The Passage is a little obscure, and I am not certain, that this is his Meaning. I meet with no other Account of the *Oleum Canangæ*.

CANATION, κανών. A Word in *Myrepsus, de Anti-dot. Cap. 500.* which *Fuchs* renders *Mensura*.

CANCAMUM, Offic. καγκάμου, Diosc. C. B. Pin. 498. J. B. 1. 324. Rati Hist. 2. 1846.

Cancamum is the Tear of an Arabian Tree, in some measure resembling Myrrh, of a very unfavoury Taste, and used in Suffumigations; being mix'd with Myrrh and Styrax, it makes a Suffumigation for Clonths. It is said to be endued with the Virtue of extenuating immoderately fat Bodies, if half a Dram of it be taken in Water or Oxymel every Day for a considerable time. It is prescrib'd in Disorders of the Spleen, for the Epilepsy, and the Asthma; and, taken in Hydromel, it provokes the Menses. Macerated in Wine, it speedily

speedily exterges Cicatrices in the Eyes, and helps Dimness of Sight, and is as good a Remedy as any for putrid Gums, and the Tooth-ach. *Dioscorides, Lib. 1. Cap. 23.*

At present we know not what the *Cancamum* was. Some take it for the *Lacca*. *Matthiolus* asserts the *Cancamum* of the Greeks, and the *Lacca* of the Arabians, to be the same thing; in which, says the learned *Raj*, he is mistaken; for their Virtues are different. Others will have it to be *Benzoin*; *Garcias* and *Amatus* affirm it to be *Gum Anime*, so that, it seems, none can be sure what it is. *Dale.*

Lemery gives the following Account of the *Cancamum*.

Cancamum is a very scarce Gum, which seems to be rather a Collection of several Kinds of Gums or Resins, united or agglutinated one to another, than only one Gum. For it is in a manner divided into four different Substances, which have each a distinct Colour. The first is like Amber; it melts at the Heat of the Fire, and has the Smell of Gum-Lacca. The second is black, melts also by the Fire, but emits a sweeter Smell than the former. The third is like Horn, and has no Smell. The fourth Species is white, and is the same with *Gum Anime*.

These Gums, they say, distil from a Tree of a moderate Height, with Leaves much like those of the Myrtle. It grows in *Africa*, *Brasil*, and the Island of *St. Christopher*.

Cancamum is proper to deterge and consolidate Wounds, resolves and strengthens, and is good for the Distempers of the Teeth.

For entire *Cancamum* they substitute *Gum Anime*.

CANCELLUS *Astaci marini species*, Ind. Med. 26. *Cancellus*, Rondel. de Pisc. 1. 553. Aldrov. de Exang. 218. Gesn. de Aquat. 161. Bellon. de Aquat. 362. Jonst. Exang. 24. *Cancellus quibusdam Bernhardus Eremita dictus*. Charlt. Exer. 58. *Cancer in testis degens*. Mer. Pin. 192. THE WRONG HEIR.

The Oil prepar'd from it is brought from *America*, and used for the Rheumatism. *Dale.*

The *Cancellus* is a very small Species of Cray-fish, which the French call *Hermit*, or *Bernard the Hermit*; because it shuns others, and retires into the first Shell it meets with. Its Body is somewhat long, but in general much resembling a Spider, except that it is a little thicker. It has two small, slender, reddish Horns; its Eyes are pretty much elevated, its Mouth surrounded with small Filaments, which may be called a Beard. Its two upper Paws are forked, and serve instead of Hands to convey any thing to its Mouth on Occasion, and it is not without Teeth. It is found in the Slime near the Rocks, inclosed commonly in a Shell as big as a Nut, of a conic Figure, thick, very hard, rugged, furrow'd, grey on the Outside, but smooth and white within. This Shell is so well adapted to the Animal, that it is a hard matter to force it out of its Inclosure. Some wash it, and then dress it and eat it. It contains abundance of volatile Salt.

It is aperitive, and good for the Stone.

In the *American* Islands they find a much larger Species of *Cancellus* than what we have been speaking of, being three or four Inches long. They call it the *Soldier*, because it possesses and fortifies itself in a Shell, which is not its own. They who have examin'd it, and among others *Father du Tertres*, say that half its Body is like a Sea-grasshopper, only his Shell is a little harder than a Grasshopper's. It has two Parts with which it bites, one whereof is pretty slender, but the other, which is above an Inch wide, and round, stops up the whole Passage into the Shell, and serves the Animal not only instead of a Hand, but for Defence; for it streightly holds, and strongly compresses whatever it seizes. Besides these Parts, it has four slender Feet, pretty like those of a Crab. The rest of its Body is about half a Finger's Breadth in Length and Thickness, and cover'd with a pretty thick and rough Skin; and its Tail is composed of three small Squamæ or Scales.

This little Animal comes once every Year to the Edge of the Shore to lay its Eggs, and change its Shell; for because its natural Shell leaves its hinder Parts naked, it employs itself, as soon as it is strong enough, in searching out another, which may be proportion'd to its Bigness. When it has found one to its Mind, it stuffs its Back-part within it, and adjusts it to its own Dimensions. Being thus habited in the Spoils of another, it goes among the Rocks, and the hollow Trees, and lives upon rotten Wood and Leaves as Crabs do. But as it grows, and the Shell with which it accommodated itself is not enlarged, it finds itself press'd in such a manner, as to be obliged to go in Search of another. Therefore it comes to the Edge of the Shore, and it is a Piece of Diversion for those who are curious, to observe how he stops at all the Shells he meets with to consider them, and, when he has found one which he thinks fit for his Purpose, how he quits his own, and with great Precipitation stuffs his Backside in his new Tenement, as if he were ashamed of being naked. And if it happens, that two of these little Animals together are ready stripped to enter the same Shell, they beat and bite one another till the weakest

gives Way, and leaves the Shell to the strongest, who, taking Possession, takes three or four Turns in it upon the Shore; and, if he does not find it convenient for his Habitation, he returns to his old Lodging, or goes in Search of another somewhere else, and sometimes he changes five or six times before he can meet with one for his Purpose.

When it is taken, it sends forth a small Cry, and tries to seize with its biting Part what holds it, which if it does, you may sooner kill it, than make it let go its Hold; mean while it cruelly squeezes the Hand, and causes a great Pain. The readiest way to be deliver'd is to heat its Shell; for then it quits its Hold, and its Shell too. They are eaten, and accounted excellent Meat by the Natives of the Country, but they are pernicious to Strangers. They find in its Shell about half a Spoonful of clear Water, which is a sovereign Remedy against the Blisters which are raised upon the Skin by a Milk or Water which falls from the Branches of a Tree of the Country, called *Manchenille*.

The Inhabitants of the Island fish for them, and, as soon as they have taken them, string them up by the Head, and expose them to the Sun, which dissolves them all but the solid Parts: This dissolved Substance is an Oil of the Thickness of Butter, and in Winter is white, inclining to yellow, and half liquefy'd; but in Summer it is reddish, of a fetid Smell, and a fishy, disagreeable Taste.

This Oil is esteem'd excellent for Rheumatisms, to which the *Savages* are very subject; and it cures them so speedily, that those who have felt its Effect, attribute it to a kind of Miracle. It is sold very dear, which is the Reason why it is so scarce in *Europe*. Brother *Yon*, a Jesuit, having been so kind as to send me some from *Martinico* to *Paris*, I made Trials of it; but could not perceive, that it produced better Effects than our Oils of Earthworms, Lizards, and Castor. A Remedy does not act always equally in different Climates: It is possible, that the *Savages* having their Pores more open than the People of our Country, the Rheumatic Humour may with more Ease and Speed perspire thro' them, when rubbed with this Oil; perhaps too it might lose Part of its volatile Salt, and of its Virtue in Transportation. *Lemery des Drogues.*

CANCER. The Crab, of which there are two Species, the Sea-crab, and River-crab. The former is thus distinguish'd.

Cancer, Offic. Schonef. Icht. 30. *Canceri marini maximi apicibus chelarum nigricantibus*, Ind. Med. 25. *Pagurus*, Bellon. de Aquat. 368. Aldrov. de Exang. 186. Jonst. de Exang. 21. Gesn. de Aquat. 155. Mer. Pin. 192. Charlt. Exer. 57. *Cancer Macas*, Rondel. 1. 560. quoad Fig. & Descript. *Jed nomina sunt transposita.* THE SEA-CRAB.

The other Crab is thus distinguish'd.

Cancer fluviatilis, Offic. Jonst. de Exang. 23. Charlt. Exer. 57. Bellon. de Aquat. 365. Rondel. 2. 208. Gesn. de Aquat. 137. Matth. 307. *Cancer fluviatilis Matthioli*, Aldrov. de Exang. 207. THE RIVER-CRAB.

Rieger, from whom the ensuing Account of the *Cancer* is taken, seems not to distinguish betwixt the Lobster and Crab, but treats of both together under the Name of *Cancer*. See **ASTACUS.**

The *Cancer* of the *Latins* corresponds to the *καρκίνος*, the *ἀστὴρ*, or the *καρμαρ* of the *Greeks*, and to the Crab of the *English*. It is an Animal so well known, that an Attempt to describe it might justly be look'd upon as superfluous. Its Shell supplies the Place of Bones, and affords proper Origins and Insertions for all its Muscles. It is an exanguious Animal, of the oviparous and amphibious Kind. There are two Species of it, the *Cancer fluviatilis*, or Craw-fish, found in Rivers and fresh Water. This Species is distinguish'd from the other by the Name of *Gammarus*, or *Gammarus*. The other Kind is the *Cancer Marinus*, known among us by the Names of *Sea-crab*, or *Lobster*. This Species is an Inhabitant of the Sea, and is distinguish'd from the former by the Name *Astacus*.

As the *Cancer fluviatilis*, or Craw-fish of the *Europeans*, is most generally used in Medicinal Intentions, we shall at present take it more particularly under our Consideration. These Animals, then, are greedy of Flesh, and flock in great Numbers about Carcases thrown into the Water where they are, and never retire so long as any of the Flesh is left; they also feed upon dead Frogs when they come in their Way. No Parts of these Animals are eatable, except their Claws and Tails, the Flesh of which is sweet and salutary; but that contain'd in the Claws is softer than that of the Tail. *Marsili Danubius Pannonico-Mysicus observationibus illustratus*, Tom. 4. The Flesh of these Animals is, with some Difficulty, digested by weak Stomachs: Hence many have been observ'd to complain of a violent Pain in their Stomachs, after eating Craw-fish over Night. *Eph. N. C. D. 3. a. 3. o. 108.* But, to others, Craw-fish boil'd proves an excellent and moistening Aliment, highly proper to be used in Summer, and by such as labour under hot Disorders. Hence we perceive, why *Li-muller* asserted, that the Broth or Decoction of Craw-fish render'd

der'd the Body soluble. The Flesh of these Animals is accounted best in the Summer Months, and is commonly thought to be bad thro' the rest of the Year.

There are various Methods of preparing these Animals; for they may either be boil'd or fry'd, and then taken out of the Shells, and made up in a great Variety of Dishes. Preparations and Broths of the Craw-fish are chiefly celebrated, not only for a palatable Aliment, but also for answering some Medicinal Intentions, as they are of a moistening Quality, and sheath up and correct Acrimony. The Broth is prepar'd of three, four, or five Craw-fishes, either alive, or suffocated in Milk or Water. After having cut off their Heads, and extracted their Intestines, they are to be bruised and boil'd in the Broth of Flesh, or Poultry, till they become sufficiently red; after which the Liquor is to be strain'd off, and Salt, Butter, or Mace, added, as the Case shall seem to require. This Broth is to be drank by the Patient, and may be render'd still more medicinal by the Addition of various Herbs and Animals, such as Snails, and other Substances, according to the Intention of the Physician. *Portius* recommends three Preparations of them, for preserving Soldiers from Dysenteries and Diarrhoeas. The first Method of preparing them is to boil them in Water, together with Parsley and Smallage; and to add Butter, Oil, or the Fat of an Ox, a Weather, a He or She Goat, or of any other Animal of a like Nature. The Craw-fishes thus prepar'd are to be eaten, with Bread soak'd in the Broth. The second Method of preparing them is, by roasting them on the Coals, and eating them with Bread. The third Method is, after they are render'd sufficiently dry by the Heat of the Fire, to reduce the Whole of them, the Shells not excepted, to a Powder, of which two Drams are to be taken twice or thrice a Week in Broth, or in any Water that may seem a proper Vehicle. *Portius de Militis in Castris Sanitate tuenda*. According to *Rondeletius*, *Forestus*, affirms, that the Craw-fish is a very proper Aliment in Atrophies, and for such as are phthical, or require a Stimulus to Veneris. For answering these Intentions, they are first to be well wash'd in common Water; but the Sea-crab is to be wash'd in a Decoction of Barley, in order to remove the Salt which adheres to its Shell: After this, they are to be suffocated in new Milk, and long boiled either in it, or in the Broth of a fat Capon. When thus prepar'd, they are a Dish much used by the Pope and Cardinals. We have a memorable Story of a certain Religious, who was so immoderate a Lover of Craw-fishes, that, upon seeing some of them among other Dishes at Table, he was seized with such a Difficulty of Breathing, and an Oppression of his Senses, that he would have probably fainted away, if he had not been forthwith help'd to some of his darling Dish. *Eph. N. G. D. 1. a. 3. o. 187*. But as all Substances do not agree with every Constitution, either in Consequence of some Peculiarity in the Constitution, which Physicians call Idiosyncrasy, or of their being too much used, so a certain Person who was a great Lover of Craw-fish, upon eating one or two, forthwith felt an Inflation of his Breast, Neck and Head, attended with a certain Uneasiness and Efflorescences, or red and ferous Spots on his Breast and Head. *Eph. N. G. D. 2. a. 3. o. 35*. When such a Peculiarity of Constitution does not forbid the Use of Craw-fish, they are highly conducive to correct the Acrimony of the Humours, as has been shewn by that celebrated French Physician, *Joan. Bapt. Gastalidis*, in discussing that Question, *Whether the Craw-fish is proper in a saline State of the Blood?* *Journal des Sçav. for the Year 1715*. Hence it is, that the Juice of the Craw-fish is very properly added to restorative and nutritive Broths, for such as labour under a Consumption, or a Phthisis. This Juice is also of a moistening Quality, and, when mix'd with the Juice of House-leek, is very proper for being apply'd to the Head, in order to remove those violent Pains which threaten a Delirium. *Hoffman de Præstantia Remediorum domesticorum*. According to *Etmuller*, the expressed Juice of the Craw-fish, with that of House-leek, makes an excellent Gargarism in the Quinsy. In Burns and Scalds, scarce any Remedy is esteem'd more effectual than newly expressed Juice of the Craw-fish, which *Grulinius* also highly extols against Redness of the Face. For the same Reason this Juice, with an Addition of that of Tobacco, proves an excellent Remedy, if pour'd or injected into sordid Ulcers and Fistulas. Hence in Dysenteries, where the large Intestines, or even the *Intestinum rectum*, are injur'd, Clysters consisting of a Decoction, or of the Juice, of the Craw-fish, are very properly injected. In burning Pains, and Spasms about the Region of the Kidneys, arising from the Stone or Gravel, there is scarcely any Remedy more efficacious than the Craw-fish bruised and applied to the Part affected. According to *Lauzonius*, *Rulandus* successfully cur'd a Head-ach, accompany'd with a Delirium, by applying to the Patient's Forehead the expressed Juice of the Craw-fish, mix'd up with Opium and Saffron. *Etmuller*, Vol. 1. informs us, that some mix unsalted Butter with the Craw-fish bruised. These they express and inspissate till the Moisture is evaporated; so that what remains is the *Butyrum Cancrorum*, a Remedy of singu-

lar Efficacy against a Phthisis, and Bruises from Falls since, upon account of the Craw-fish, it is an excellent Vulnerary, especially in Exulcerations of the Kidneys, urinary Ducts, and other internal Parts. *Philippus Jacobus Sachs*, in his *Gammalogia*, gives us the following Receipt for the *Butyrum potabile Cancrorum*, which he wonderfully extols as an efficacious Remedy against Bruises from Falls.

Take sixty Craw-fish in the Month of June, bruise them in a Mortar till they are reduc'd to the Consistence of a Poulrice; then put them in a glaz'd Vessel, and add a large Quantity of May Butter, or that which is made of the Milk of Goats; of Goats Lard, and Oil of Olives, each half a Pound; of Badgers Suet, which is not rancid, a sufficient Quantity; of Goat's Blood, one Ounce; six Nutmegs reduc'd to Powder; of the Powder of the Roots of Madder, Tormentil, and Burnet, each an Ounce; and of Saracens Consound cut small, one Handful. Let them boil together for half an Hour, stirring them continually, in order to prevent their burning; then strain them thro' a Cloth; then cleanse the Vessel, put the strain'd Liquor into it, and let it boil over a moderate Fire: Take off the Froth which rises during the boiling, and strain it a second time thro' a Cloth; when the Liquor is become cool, put it into a Glass to be kept for Use.

In Falls, or in Cases where a Vein is burst by any violent Motion, or carrying a heavy Burden, the Dose of this Medicine is the Bulk of a large Filbert, to be exhibited for the first time in Vinegar; after which the Dose is to be frequently repeated, chusing warm Ale for a Vehicle. In the *Pharmacopœia Argentoratensis*, the *Oleum Cancrorum* is prepar'd by boiling bruised Craw-fish in Linseed-oil, and afterwards straining off, and expressing the Liquor. This Medicine is recommended to be used externally in Burns, and for allaying and mitigating Pains. *Simeon Sethi* affirms for a Truth, that Oil in which Craw-fish have been boiled, is an efficacious Remedy against burning Pains of the Ears, if dropt into them. The *Aqua Cancrorum Simplex*, which in *Lemery's Pharmacopœia*, and that of *Schroeder*, is order'd to be distilled from bruised Craw-fish in *Balneo Mariæ*, seems to possess no more Virtues than common distilled Water, since nothing but an insipid Phlegm passes the Helm; for which Reason *Etmuller* thinks, that the Water obtain'd from putrid Craw-fish is preferable to this, since the former is impregnated with a volatile unious Salt, disengag'd and set at Liberty by the Putrefaction. But whether this Water possesses extraordinary diuretic and antinephritic Virtues, and is an uncommonly efficacious Remedy against all Inflammations, the Bites of mad Dogs, Wounds, and Ulcers of the internal Parts, and especially of the Breast and Lungs, are Points we shall leave to be determin'd by the Experience of others. This Water is, no doubt, of an alkaline Quality; and this Circumstance probably induc'd the learn'd *Tralles*, who maintain'd that most Diseases proceeded from an Acid, to believe that it might be of Service in the above-mention'd Disorders. *Tralles de terreis Remediis*. For external Use, the *Aqua Cancrorum Quercetani* is prefer'd to the expressed Juice of the Craw-fish. This Water of *Quercetani* is prepar'd by boiling Craw-fish in the Water of the greater House-leek, in a close double Vessel, for the Space of a whole Day; after which this Water is to be distil'd, and what is yielded by Distillation is to be three times cohobated upon the *Caput Mortuum*. This is a Medicine highly recommended against Burns, Inflammations, and Cancers; but it might be render'd still more efficacious for the Cure of Cancers, and phagedenic Ulcers, by extracting the Salt from the Ashes of the *Caput Mortuum*, with its own Water. *Quercet. Tom. 2*. More seems here to be promised than can well be expected from an alkaline Liquor. Nor do the wonderful Virtues which *Faber* ascribes to his *Quinta Essentia*, or *Arcanum Cancrorum*, seem to be less dubious. By a slow Fire he distils Water from the Flesh of Craw-fish. The Water yielded in the Process he rectifies seven times, and then, after incinerating the *Caput Mortuum*, he orders the Salt to be extracted from it with the Water of Rest-harrow, Gromwel, or Saxifrage, and added to the Craw-fish-water. He wonderfully extols this Remedy for dissolving and expelling the Stone in the Kidneys and Bladder, and for removing its efficient and antecedent Causes. When mix'd with the Spirit of Turpentine, he recommends it for the Cure of a Difficulty in discharging the Urine; as also for removing Dimness of Sight, Specks, Films, and Cataracts of the Eyes, if dropt into them thrice a Day. He orders it to be taken internally in common Broth, or in any proper Water; but does not ascertain the Dose, with respect to which he could not well have erred, since it is a Liquor of no Virtues, because the insipid Ashes of the calcin'd *Caput Mortuum* yield no Salt in Elxiviation. This Medicine, when exhibited with Spirit of Turpentine, may, indeed,

deed, operate by the Virtue of that Spirit, but otherwise its Efficacy will not much surpass that of common pure Water. *Fabri Oper. T. 2.* The same may be affirmed of that Water, which, in *Lemery's Pharmacopœia*, is ordered to be prepared by Distillation, from bruised Craw-fish and new Asses-milk. The *Aqua Ophthalmica Mynsichti*, in *Lemery's Pharmacopœia*, is possessed of a detergent Quality, in consequence of the Things subjected to Distillation along with the Craw-fish; tho' it must be owned, that some of them do not yield their Virtues during the Process. When, therefore, Craw-fish are to be used for Medicinal Purposes, their Juice, or Broth prepared of them, is preferable to a Water distilled from them. From putrefy'd Crabs, indeed, as also from fresh ones distilled with an Alkali, an urinous Spirit and a volatile Salt are obtained; but *Etmuller* justly doubts whether these Preparations are superior to other volatile Substances of a like Nature; so that nothing of a specific Nature, or uncommon Excellence against Diseases, can be expected from subjecting the Craw-fish to Chymical Processes. The Antients recommended the Ashes of the calcined Craw-fish, not only alone, but also in Conjunction with Gentian and Frankincense, for the Cure of such as were bit by mad Dogs. *Diosc. Lib. 2. Cap. 10.* But I scarce think, that a modern Physician can be persuaded, that these Ashes possess this remarkable Virtue, even tho' the divine *Hippocrates* himself had asserted it; for these Ashes are no more than an earthy Substance, without Salt, or a pure inactive Calx, which *Ludovici*, in his *Pharmacopœia*, when talking of its diuretic Virtue, thinks to be of little Efficacy, except when heightened and exalted by an Addition of bitter Alexipharmacs. I must, however, observe, that these Shells, calcined, are a sort of Lime, and, as such, may be endued with Medicinal Virtues. These Ashes are at present exploded, tho' they still retain a Place in the *Pharmacopœia Parisiensis*. *Hoffman*, in *Off. Paralep. Cap. 11.* thinks these Ashes ought to be prepared of that Species of Sea-crab which has a Tail lying flat upon the Body, and which he would have to be kept in the Shops, on account of the Encomium bestowed on them by *Galen*, who asserts, that he never knew any, bit by a mad Dog, in Danger, provided they only knew how to make a proper Use of this Powder. But the Sea-crab, when calcined, does not afford a Powder of higher Medicinal Virtues than the Craw-fish, or River-crab; nor is it possible, as *Æschrius*, from whom *Galen* had this Secret, believed, that they should acquire any additional Virtues by being calcined under certain particular Aspects of the Planets. To *Hoffman's* Authority we shall oppose that of *Helmont*, who owned this Powder of the Craw-fish to be void of Efficacy. For Medicinal Intentions *Etmuller* prefers the Craw-fish, gradually dry'd in the Mouth of an Oven, in an unglazed earthen Vessel, and reduced to a Powder in a Mortar, to its Ashes, in Cases where Urine is to be provoked, or Ulcers of the Bladder and Kidneys to be cured; as also for resolving grumous and coagulated Blood. He also affirms, that, in Conjunction with a certain fixed vegetable Salt, and a proper Water, it cures intermittent Fevers, by exciting a Diaphoresis; and that between half a Dram and a Dram of it was *Poterius's* Specific against Abortion: But its specific Virtues for this Purpose may justly be called in Question; nor is it probable, that it is possessed of any besides an absorbent alkaline Quality, by which it becomes a Corrector of Acids. *Etmuller*, however, is of Opinion, that the Craw-fish, calcined by a strong, or a long-continued Fire, approaches to the Nature of Quick-lime. "I took, says he, Craw-fish calcined to Whiteness, of a stronger and more penetrating Taste and Smell than that of Lime. Upon pouring Water upon them, some Marks of an Effervescence were exhibited, but without an Ebullition; and, immediately after, a saline white Pellicle floated on the Surface." *Helmont* informs us, that Swine are so fatal to Craw-fish, that those who convey the latter in a Carriage, are obliged to watch, lest any of the former should chance to run under the Carriage, in which Case all the Craw-fish are found dead. Whether this be Fact or not, we shall not take upon us to determine; only of this we are certain, that if it is true, it is very surprising. We now come to consider the *Lapides Oculi Cancrorum*, or, as we call them, *Crabs-eyes*. These were, by the Antients, thought to be found in the Brain; but there are two of them formed in each Crab immediately above the Stomach, which is placed in the Head, and surrounded on all Sides by a soft humid Matter, called *Mucus*, by many thought to be the Fœces of the Animal, and by *Ballonius* supposed to be its Liver. These Stones lie under that Membrane which is to form a new Stomach for the Animal, one on each Side, when, in the Summer Months, the Craw-fish cast their Shells and Claws, and have them gradually renewed, from the Skin's becoming more and more indurated; upon which these Stones, being converted into the Nourishment of the Animal, gradually disappear, and are lost. As *Helmont* was the first who taught the Manner in which these Stones were formed, and as his Account has since been confirmed by others, it will not, on this Occasion, be improper to present the Reader with a Translation of what he has said on this Subject. His Words are as follows: "By repeated and accurate Dissections of the

"Craw-fish, I have discovered the following Particulars: First, that the Stomach is situated in the Head of the Craw-fish, near the Crown. The Males begin every Year to grow sick about the Middle of the Month of *June*, and the Females in *July*, before they cast their Shells; for they are, as it were, half-dead, and immoveable for nine Days and more. At this Time a new Membrane is formed round their Stomach, between which and the Stomach there is a certain milky Humour, which, by Degrees, is contracted on both Sides into a Concavity, and acquires the Form of a Stone, upon the exterior convex Globe of the Stomach, where it touches and covers it. But neither at this time, nor for a great while after, does the Crab eat any thing. What seems incredible is, that the old or interior Stomach is converted into an alimentary Mucilage, and the new Stomach succeeds in its room. Round about that milky Substance, adhering to the convex Part of the old Stomach, such a Pellicle is formed as is usual on warm Milk; and this milky Substance increases between the two Membranes of the old and the new Stomach. All these Circumstances I have universally observed with uncommon Pleasure, in dissecting about two hundred Crabs. At last the remaining Part of the Milk goes to the Nourishment of the Animal. Last of all, both these Stones are also gradually dissolved, and converted into Aliment by little and little. The Crab eats nothing, or, at least, nothing is found in its Stomach, so long as these Stones remain in it; and the Animal lives about twenty-seven Days upon its old Stomach, which is gradually consumed, and upon the Stones, which are afterwards dissolved." Such of these Stones as are taken from live Crabs are of a somewhat azure Colour, and are esteemed better than those obtained from boiled Crabs, which are of a whiter Colour. In Figure they resemble half a Pea; they are hard, rough, and, on the flat Side, mark'd with a small Pit; but they are more smooth on the convex Surface, and have an earthy Taste, but no Smell. They are of a lamellated Contexture, like that of the Bezoardic Stone. By Calcination these Laminæ exfoliate, and yield an urinous Smell. When subjected to a Chymical Analysis, they yield the same things that may be obtained from the solid Parts of other Animals, as *Etmuller* informs us in the following Words: "These Stones, says he, when distilled by a Retort, yield a Phlegm, an urinous Spirit, and a volatile Salt, tho' not in a very large Quantity. A highly fetid Oil is also, at the same time, obtained from them. The Caput Mortuum, upon an Affusion of Water, produced an Effervescence, especially when newly prepared, like Quick-lime." His other Experiments on Crabs-eyes are the following: "I dissolved, says he, Crabs-eyes in Spirit of Salt, which left a kind of light earthy Substance, when the Solution was drawn off by the Heat of a Lamp. Common Water, poured upon the Caput Mortuum, produced a considerable Heat, and afforded conspicuous Signs of an Ebullition and Effervescence; but the Water, when again drawn off, afforded no Marks of a volatile Salt. At last the Caput Mortuum, upon taking it out of the Glass, and pouring Water upon it, did not yield the smallest Sign of Heat." From the Experiments made by *Mr. Homberg* it appears, that an Ounce of the Spirit of Salt dissolves three Drams of Crabs-eyes; whereas four Drams and nine Grains may be dissolved in an Ounce of the Spirit of Nitre. *Mem. Acad. Reg. Sc. A. 1700.* From what has been said we learn, that Crabs-eyes are among the Number of those earthy Bodies which are commonly called alkaline or absorbent, which are dissolved by Acids, and which do not exhibit any Signs of their containing a volatile Salt, till they have received some kind of Change by the Fire. From the alkaline Nature of these Crabs-eyes, their apparent progressive Motion when thrown into Vinegar, or when Vinegar is only sprinkled upon them, is commonly accounted for, because alkaline Menstruums receive and absorb Acids. These Stones, or Eyes, are kept in most of the Shops, and found in great Plenty in the *Budziac Tartary* of *Bessarabia*, but especially in the Desert of *Wallachia*, not far from the Town of *Tegina* or *Bender*; as also in the *Russian Ukrain*, about the Rivers *Borysthenes* and *Tyra*, throughout *Padolia*, a Country watered with several Rivers. Hence they are carried for Sale thro' *Poland*, to *Conningsberg*, *Dantzick*, and *Breslaw*.

Fictitious or adulterated Crabs-eyes, nearly resembling those of the genuine Kind, are sometimes sold by Impostors, who prepare them of Tobacco-pipe Clay. But the Fraud is easily detected, because they not only want the lamellated Contexture of the others, which is discovered in calcining them, but are also heavier than those of the genuine Kind. Several other Methods of distinguishing the spurious from the genuine may be seen in *Eph. N. C. D. 3. a. 3. o. 147. 151.* or, as we are taught in the *Atta Literaria Suecicæ*, we may pour upon them some acid mineral Spirit, such as that of Nitre or common Salt; for, if the Stones are genuine, an Effervescence is immediately produced; and, after the Effervescence is over, the acid Liquor becomes sweet. But, if they are fictitious, or made of Clay, a small Ebullition is, indeed, produced, but the Acidity of the Spirit

Spirit remains, and again produces a violent Effervescence, upon an Addition of the Powder of true Crabs-eyes. *Valentini* informs us, that this Experiment, made with acid Spirits, is deceitful, when the factitious Stones are prepared of Shells. But Art and Fraud have taught Mankind to counterfeit these so very well, that there is scarce a Possibility of distinguishing the spurious from the genuine. There is another Piece of Imposture highly prejudicial to Health. Those Crabs-eyes which are of a somewhat azure Colour are esteemed preferable to the others, and sold at a higher Price, under the Name of live Crabs-eyes. At *Katisbon* a certain Person tinged counterfeited Stones of this Colour, probably with Smalt, which is made of Cobalt, and is of a poisonous Quality: For one Dose of the Powder of these factitious and high-coloured Stones killed a Woman in the Space of thirty Hours. *Buchneri Miscellanea*. But whether Crabs-eyes are a Medicine of such Importance, as that the Physician ought to be highly solicitous about their being genuine or not, we leave to others to determine. Their Use in Dentifrices is not certainly so great as is commonly thought, since such a Powder, by the Hardness of its Parts, can do no more than what is to be expected from other rough Substances. *Tralles de Remediis terreis* informs us, that *Sachs*, in his *Gammarologia*, ascribes uncommon, and even incredible Virtues to them, and seems surprised, that Physicians, who have read that Work, do not attempt the Cure of some Diseases by Crabs-eyes alone, without the Use of other Medicines. The celebrated *Hoffman* tells us, "That the Powder of Crabs-eyes alone, prepared with Egg-shells, and mixed up with a fourth Part of Nitre, is a Medicine of so great Efficacy, that one Dram of it produces very happy Effects almost in all chronical and acute Distempers, especially those attended with immoderate Heat. It is a Powder of very extensive Use, and highly serviceable for absorbing the Acid of the Primæ Viæ in Hypochondriac and Scorbutic Cases, and for allaying Heat in all kinds of Fevers. It is also of singular Service where a Diaphoresis is required. The Powder of these Stones, when exhibited with distilled Vinegar, operates still more efficaciously, since it powerfully resolves coagulated Humours, provokes Urine and a Diaphoresis, and is used with singular Advantage in all Fevers, in the Plague and other malignant Diseases, in Pleuritis, Peripneumonies, and in all Inflammations." Some affirm, that Crabs-eyes are possessed of Bezoartic Virtues, and, consequently, think them of Service in several very considerable Disorders. That, in many Cases, Physicians have been persuaded of their uncommon Efficacy, is obvious from the large Number of Recipes in the Pharmacopœias, in which Crabs-eyes make an Ingredient, unless we should say, that this is only done to increase the Number of the Ingredients without any other View; which is not probable. Singular Virtues are, therefore, ascribed to Crabs-eyes in correcting Acidity, allaying the Heat of the Blood in all kinds of Fevers, exciting a Diaphoresis, and provoking Urine to such a Degree, as even to cure the Dropsy by the plentiful Discharge made. But *Tralles* seems to be in the right, when he suspects, that "Insignificant Medicines have often been extolled at random, in Imitation of others who went before, to the great Detriment of the Art; since this Practice proves a Stumbling-block not only to Students, but to Practitioners of long standing." That we may, therefore, keep a just Medium, and neither attribute imaginary Virtues to this Medicine, nor destroy its real ones, we must allow, that it only acts as an Absorbent in the Primæ Viæ, by absorbing, and consequently subduing, the peccant Acid, or correcting its Acrimony. When levigated to a fine Powder, which, in the Shops, is called Preparation, these Eyes may be exhibited in any Dose which can be borne by the Stomach, to which they can only prove offensive by their Weight. So that they prove a proper Medicine not only for removing, but also preventing Diseases arising from an Acid in the Primæ Viæ. For this Reason *Portius*, in his Treatise *De Militis in Castris Sanitate tuenda*, recommends to the Soldiers, as a Preservative against Diarrhœas and Dysenteries, a Dram of the Powder of Crabs-eyes. Their absorbent Virtue is not conveyed to the Mass of Blood, nor, indeed, is there any Occasion for it there. But if they are mixed with an Acid, either without the Body, or within it, in consequence of a Property common to all other absorbent or alkaline Substances, they are transformed into a kind of neutral or indifferent Salt: So that they may by Accident, in consequence of the Acid they have admitted and absorbed, act like an Aperient or Resolvent; that is, excite a Diaphoresis, or Diuresis; and, consequently, as they now partake of the Nature of a neutral Salt, prove serviceable in many Diseases, where the Exhibition of an Absorbent does not in the least seem necessary. This *Tralles* himself owns in *Cap. 8*. From what has been said, we may see in what Sense manifold Virtues may be ascribed to Crabs-eyes. Hence we may also perceive, why, according to *Etmuller*, a Dram of the Powder of Crabs-eyes may be said to be an excellent Prophylactic, or Preservative, for hard Drinkers, and such as are subject to arthritic or nephritic Disorders; because it corrects and subdues the Acid of the Wine, and, by that means, prevents the bad

Effects it might otherwise produce. But we must beware of falling into the Error of those who affirm, that Crabs-eyes are efficacious against any particular Disease, because an Acid is its immediate Cause; for these are things that cannot be subjected to a rigorous Examination, nor does the Action of Absorbents, as such, reach the Blood-vessels, and most remote Parts of the Body. *Helmont* himself, who makes an Acid the Cause of too many Disorders, when he asserts the diuretic Virtues of Crabs-eyes, does not believe, that their Energy reaches the Seat of the Disorder. "It is far," says he, "from being so, since they only deprive what we drink of an acedent Quality, which alone, however little of it is conveyed to the Urine, is sufficient to produce Stranguries, Dysuries, and other burning Pains, arising from the Stone." If we ascribe true and genuine, and not chimerical and imaginary Causes to Diseases, we shall not readily admit the over-strained Praises by many Authors bestowed on Crabs-eyes to be just; when, for Instance, they are said to be Correctors of the Acid of Wounds and Ulcers, and for that Reason are classed among Traumaties, and made an Ingredient in the *Pulvis congluticans Cnoesclii*, together with the Sloughs of Serpents, or, in their stead, Earth-worms. *Etmuller*, *Vol. 1*. Nor, if we consider maturely, shall we attempt laborious Preparations of Crabs-eyes for Ulcers and Wounds, which, tho' they should answer the Intention by means of the other Ingredients, might still be prepared in a more easy Manner. Of this we have Instances in *Essentia oculorum Cancro in Boetii de Boot Gammarum & Lap. can. Historia*, *Lib. 2. Cap. 176*. But when *Helmont* affirms, that not only a fine diuretic, but also a vulnerary, and an antifebrile Medicine may be obtained from Crabs-eyes, provided they are resolved into their original Form of Milk; we can say nothing of this Medicine, because we know not whether it ever has, or ever can be used by any one. But we must not forget, that, according to the Experiments of Mr. *Hemberg*, the same Quantity of the Spirit of Nitre, and of the Spirit of Salt, is required to saturate a smaller Quantity of other earthy alkaline Substances, such as Coral, Pearl, Mother of Pearl, oriental and occidental Bezoar, the human Calculus, Oyster-shells, calcined Hartshorn, Quick and Slak'd-lime, than of Crabs-eyes a larger Quantity of which is necessary to absorb and receive an equal Quantity of these acid Spirits. Hence it follows, that Crabs-eyes are possessed of a smaller Efficacy or Virtue of absorbing an Acid, than the now-mentioned Ingredients. What we call the *Oculi Cancrorum Preparati* are only Crabs-eyes, reduced to a Powder, and levigated on a Marble, with an Affusion of common Water, or any distilled Water, such as that of Roses or Baum, and afterwards made up into Troches. These Troches are prescribed in the same Cases where the Crabs-eyes are used. The *Pulvis absorbens citratus D. Stahliani*, in the *Dispensatorium Boruffo-Brandenburgicum*, is prepared thus:

Take of Crabs-eyes, any Quantity; pour as much fresh Lemon-juice upon them as is sufficient to saturate them; then evaporate the Moisture, over a gentle Fire, in an Earthen or Glass Vessel, stirring it with a wooden Spatula; then let it be triturated, and passed thro' a Linen Sierce.

Because, in this Preparation, the Acid is mixed with the Alkali, we know why a Scruple of it comes to be recommended as a gentle Resolvent in continued and inflammatory Fevers. This Powder is also called *Lapides Cancrorum, acido citri saturati*. *Schutz. Prel.* The *Pulvis absorbens nitratus D. Stahliani*, in the same Dispensatory, consists of a Mixture of equal Parts of Crabs-eyes prepared, of the Shells of Fish prepared, and depurated Nitre. The *Pulvis absorbens tartarifatus D. Stahliani*, in the same Work, is prepared thus:

Take of Tartar, grossly pounded, two Ounces; of Crabs-eyes prepared, half an Ounce: Boil in a sufficient Quantity of common Water; then evaporate the Moisture.

It agrees in Virtues with the *Pulvis absorbens citratus*.

The *Pulvis absorbens D. Wedelii*, in his *Opiologia*, is prepared thus:

Take of the Vitriol of Mars, six Grains; of prepared Shells, of prepared Crabs-eyes, of Coral, of diaphoretic Antimony, and of native Cinnabar, each half a Scruple, or between fifteen and twenty Grains; of Laudanum Opium, one Grain; and of the Oil of Cloves, one Drop: Mix up into a Powder, for six Doses, to be taken in Cinnamon-water, that of Baum, or any other spirituous Water; or with domestic Vehicles, such as Wine or Ale. The Dose may be repeated every Hour, or less frequently, according as Circumstances require.

Wedelius, the Inventor of this Medicine, bestows singular Encomiums upon it in hypochondriac and hysterical Disorders, as also in Syncopes, and Palpitations of the Heart. The *Solutio Oculorum Cancrorum* is made by dissolving Crabs-eyes in distilled Vinegar, and filtrating them thro' a Paper. This Medicine may be prepared *extempore*, when Necessity requires. When this Solution,

Solution, after Filtration, is evaporated to Dryness, what remains is called the Salt of Crabs-eyes, which is nothing but the Acid of the Vinegar retain'd in the Powder; but this Medicine is now obsolete, and out of Date. If to the aforefaid filtrated Solution we add Oil of Tartar per Deliquium, a very white Powder is precipitated, which, when edulcorated and dried, is the Magistery of Crabs-eyes; of which we may affirm, that it is only the Powder of Crabs-eyes, deprived of the Acid before pour'd upon it, and which might be equally well prepar'd without any previous Solution.

The Shells, and especially the Claws of Crabs, are of the same Nature and Uses with their Eyes. These Shells, reduced to a Powder, and mixed with Oil of Roses, are recommended against the Itch in Children. This Medicine seems to be recommended against the Itch, from a Persuasion, that this Disorder arises from an Acid, which is indeed often the Case; but that such a repellent Ointment conduces to the Cure of the Disorder, is what we dare not assert. The black Points of the Claws are principally used in Medicine. The Claws are prepared in the same manner with the Eyes. The *Pulvis e Chelis Cancrorum compositus*, which is also call'd *Pulvis Bezoardicus Anglicus*, and *Pulvis Gasconii*, *Gascoign's Powder*, as in the *London Dispensatory*, is

Made up of prepared Pearls, Crabs-eyes, red Coral, the whitest Amber, calcin'd Hartshorn, and Oriental Bezoar, each an Ounce; and of the Powder of the black Points of Crabs-claws, a Quantity equal to all these. When these Ingredients are pounded and mix'd, they are made up into small Balls, with a Solution of Gum Arabic.

In the *Pharmacopœia Parisiensis* the same Number of Ingredients is retain'd, but the Proportion is alter'd; and, instead of the Gum Arabic, Jelly of Vipers is used. In the *Pharmacopœia Edinburg.* the Ingredients are the same, but the Proportion also varied; and they are kept in a Powder. In the *Pharmacopœia Leidensis* the Form of a Powder is also retain'd; but, besides the above-mentioned Ingredients, there is an Addition of Contrayerva-root, Troches of Vipers, and Leaf-gold. In the *Dispensatorium Brandenburg.* the Troches of Vipers and Leaf-gold are omitted; and to the other Ingredients are added Lemnian Earth, Cerus of Antimony, Ambergrise, and Saffron, all which are made up into small Balls, with Jelly of Vipers. In *Leмери's Pharmacopœia*, instead of the Lemnian Earth, the reguline diaphoretic Antimony, and the Ambergrise, Contrayerva, or *Virginian Snake-root*, are substituted.

In the *Pharmacopœia Bateana* the Powders prescribed in the *London Dispensatory* are retained, unless that the Occidental Bezoar is substituted in the room of the Oriental. There is also an Addition made of Contrayerva-root, white Coral, Crystal, Terra Lemnia, Cerus of Antimony, Ambergrise, Musk, and Saffron; all which are, with Jelly of Vipers, reduced to small Balls, under the Name of *Pulvis Cantianus*; and if, to the above-mentioned Ingredients, Cochineal is added, the Preparation is called *Pulvis Cantianus ruber*; but if the Ashes of Toads are added to them, it is called *Pulvis Cantianus niger*. The former Compositions are more simple than the latter, which retain the Ingredients of the other, but in different Proportions, and receive also other Ingredients. Because it is easy to make Additions to Things before invented, the first simple Recipe of the Inventor probably received several Additions in Process of Time. A certain *Gascoign* first brought this Powder into *England*, and made considerable Profit by it. In the *Disp. Brandenburg.* he is said to have sold it to the Bishop of *Worcester* for three hundred Pounds Sterling. *Georg. Starkey* affirms, that it degenerated very much from its supposed Efficacy after it was publicly known; and observes, that the same has been the Fate of several other Arcana in Medicine. In Cases of this Nature, the Credulity of Mankind unquestionably furnishes Medicines with Virtues, which Nature has either absolutely refused them, or at least bestow'd upon them in a very scanty Measure. The Dose of this Medicine is from half a Scruple to half a Dram. *Schulzius*, in his *Prælectiones*, extols it as an efficacious Remedy against acute, exanthematous, and malignant Disorders; as also against the Plague itself. Dr. *Stare*, in his Observations upon Bezoar-stones, upon examining the several Ingredients in the *London Composition*, thinks, that the Bezoar-stone, the Amber, and the Hartshorn, are superfluous and useless Ingredients in a Medicine intended to correct Acids: He is also of Opinion, that the other Four Powders are not preferable to others of the testaceous Kind. For this Reason he prefers Chalk, with Salt of Wormwood, to this costly Composition; since the former is a powerful Absorbent of an Acid, and the latter a powerful Alkali, proper for correcting Acids, and of a diaphoretic and diuretic Quality. According to *Etmuller*, *Deodatus* recommends half a Dram, or a Scruple, of the Powder of Crabs-eyes, as an excellent Purgative.

I must remark, that the *European* Craw-fish are not the same with the *River-crabs*, which *Galen* means in his famous Receipt for the Bite of a mad Dog; for these last are a Species of *River-crabs*, properly so call'd, which are not found in the Rivers in

our Part of *Europe*, but which are common in those of *Greece*, *Crete*, and *Sicily*.

CANCER, καρκίνος.

By the Term *Cancer*, as appears from several Places of *Celsus*, the *Roman* Writers understood what the *Greeks* call'd *Gangrene*, or *Sphacelus*; and the Disease which now passes under the Name of *Cancer*, is the very same as what the *Greeks* and *Romans* meant by the Word *CARCINOMA*; to which the Reader is refer'd for an Account thereof.

CANCHRYS, CANCHRY. The same as CACHRYS, CACHRY, which see.

CANCINPERICON, Hot Horse-dung. *Rulandus*.

CANCRENA. A Word commonly used by *Paracelsus* for *Gangraena*.

CANDELA, λύχνος, κηρός, a Candle, has its Uses in Medicine, and is reckon'd among the Instruments of Surgery. Thus, in *Scultetus's Armentarium Chirurgicum*, Edit. Hagæ-Comitum, 1656. Tab. 13. Fig. 9, 10. are represented two Candles, prepared of strong Thread doubled, and white Wax, mixed with a little Turpentine, that they might not be subject to break; these, being rubb'd over with Oil of sweet Almonds, are introduced into the urinary Passage in the Case of an Ischury, occasioned by an Obstruction from Caruncles. One of these Candles appears with its Top broken, to hint to the Surgeon, that he is to cut off the Extremity of the Candle with his Scissors, before he introduces it; lest, in extracting it, he should leave a Bit of the Wax, through which the Thread or Wick might not reach, behind, and so increase the Ischury. There is also a uterine Candle, which is a sort of Pessary; and Wax-candles are used in the Operation of Cupping. *Schroder, Pharmacop. Lib. 2. Cap. 86.* gives us Preparations of *Candela fumales*, or Candles for Fumigation, called also, from their Figure, *Baculi*, or Staves, composed of odoriferous Powders, made up with Mucilage of Tragacanth, Styra, and the like. They are used to burn in pestilential Times, or to purify the Air upon Occasion. They are also called *AVES CYPRIÆ*, which see.

The *Latin* Word *Candela* corresponds to what, in *English*, we call Candle, which is a round cylindrical or conical Body, form'd, for the most part, of Tallow, and sometimes of Wax, with what the *Greeks* call ελλύχνιον, or a Wick, running from one End of it to the other. *Basilus Faber*, in his *Thesaurus Eruditionis Scholasticæ*, and *Salmasius*, in his *Exercitationes Plinianaæ*, inform us, that the Antients, for Wicks, used the Medulla, or what we call the Pith of Bulrushes, which, when immersed in liquid Wax, constituted their Candles. But, at present, the Wicks are generally made of Flax or Cotton, so twisted as most commodiously to answer the End. They who either consult Convenience, or study the Preservation of Health, observe a Difference of Candles, both with respect to the Flame, and the Fumes or Exhalations emitted from it. The Flame ought not to be inconstant and vibratory; since, in that Case, it is both prejudicial to the Eyes, and insufficient for the distinct Illumination of Objects. This Fault is generally the Consequence of the Wick's being impure, not sufficiently dry, or not duly twisted. The Quality of the Exhalations depends upon the Matter in which the Wick is immersed, and which serves to feed and nourish the Flame of the Candle. Wax, which is adulterated with various foreign Substances, must, when burning, necessarily impregnate the Air with certain Qualities, which are not only ungrateful to the Smell, but prejudicial to the Health. Besides, *Verdegrise*, and other Substances, which are sometimes mixed with Wax, in order to give it an agreeable Colour, cannot fail to produce very pernicious Consequences. Every one, who deserves the Name of a Physician, very well knows, that the Air may be impregnated with medicinal Virtues, which have a considerable Influence on the human Body; and that it may, in like manner, be contaminated with Effluvia or Exhalations, not only prejudicial to Health, but destructive of Life. The Physician, therefore, who has Patients of a delicate and tender Constitution committed to his Care, must give the strictest Orders, that every Thing of a noxious Nature, arising from Candles, be kept at the greatest Distance, and avoided with the utmost Diligence. A large Cloud of fetid Smoak, tho' rising from Candles made of white Wax, has, from Experience, been found prejudicial to many, as it not only creates Head-aches, but sometimes proves offensive and injurious to the Lungs. Candles made of old Tallow, and such as, for the Profit of the Seller, is adulterated with various Mixtures, by their Fumes and Exhalations considerably impair and destroy Health. Those prepared of the Tallow of Beef send forth a more disagreeable Smell, than such as are made of the Suet of Wethers or Sheep; and Tallow-candles in general are never observed to smell more disagreeably, than when any Quantity of Hogs-tallow is mixed with that of which they are made: Hence it is, that in *France* a Law is enacted, by public Authority, injoining Candles to be made of a Mixture of the Tallow of Oxen, Wethers, and Sheep, and expressly prohibiting the least Admixture of Hogs-tallow. *Savary, Dictionnaire universel de Commerce.* *Rammazzini* advises "Literati, or Men of a studious Turn, to use Tallow-candles in their Studies

"as little as possible; and, if their Circumstances will not afford Wax-candles, to burn Olive-oil in Lamps, as the antient Virtuofos did." *Fortunatus Plempius* informs us, from *Pliny, Lib. 7. Cap. 7.* "That the Exhalations of Tallow-candles are as effectual for procuring Abortion, as the Fumes of an extinguish'd Lamp." In *Eph. N. C. D. 2. a. 9. o. 205.* we have the Case of a sleeping Man, who, in consequence of the Fumes of an extinguish'd Candle, was seized with Convulsions, a Difficulty of Breathing, and at last with Death. *Valentinus*, in his *Pandectæ Medico-legales, Tom. 1.* gives us the History of a Case exactly parallel with the former; and *Hoffman*, in his *Medicina Rationalis*, does not hesitate to class the Fumes, arising from an extinguished Candle, among poisonous Substances. In the *Alta Medica & Philosophica Hafniensis, Vol. 5. Obs. 86.* we are supplied with a sufficient Proof of the noxious Quality of the Exhalations of Tallow, in the Case of a Woman, who, in consequence of her being employ'd in making Tallow-candles for Sale, in the Night-time, and in a small Apartment, was seized with a violent Head-ach, a Vertigo, a Redness of the Eyes, and at last a most formidable Asthma. *Olaus Borrichius* recovered this Patient, by first exciting a Vomiting, and afterwards exhibiting pectoral Waters, with Oxymel of Squills; by which means, as he expresses himself, he thought he had routed the Enemy: But, on giving over the Use of these Remedies, she was soon after seiz'd with an Orthopnoea; however, she was again restored to Health by their being repeated. This Circumstance induced *Borrichius* to caution all Candle-makers to work in Shops that were large, and exposed to a free and open Air. Whether, in Consequence of what has been said, it is not the Duty of the Magistracy in large Cities to prevent the Air of the Streets being contaminated by the Steams proceeding from the Shops of Tallow-chandlers, is a Point we leave to be determin'd by others. 'Tis not our Province to consider those Candles which are prepared for lasting an uncommon Time, for diffusing a grateful Odour, or for bearing Wind and Water without being extinguished. We shall refer the Reader, who wants Satisfaction in these Particulars, to *Petrus Moria Caneporius de Arramentis*, and *Chomel's Dictionair. Oeconomique*, in the Article CHANDELLE.

'Tis more properly our Business to consider such Candles as are used in the Shops for medicinal Intentions.

The *Candela fumalis*, then, or the *Candela pro suffitu odorata*, which is also called *Tæda* and *Avicula Cypria*, is a Mass of an oblong Form, consisting of odoriferous Powders, mix'd up with a Third or more of the Charcoal of the Willow or Lime-tree, and reduced to a proper Consistence, with a Mucilage of Gum Tragacanth, Ladanum, or Turpentine. This Species of Candle may also be prepared of resinous Substances alone, mix'd up with Balsamics. It is intended to excite a grateful Fume or Smell, without any Flame, to correct the Air, to fortify the Brain, and to excite the Spirits. These Candles are also, from their Form, called *Bacilli*, and *Masse ad Fornacem*; because they are usually applied to a hot Grate or Chimney, in order to have the Smell, they are intended to diffuse, excited. But we must take care, that none of their Ingredients consist of Woods, Flowers, Roots, Herbs, or Barks; because most Substances of that Kind, when set on Fire, diffuse an empyreumatic and ungrateful Smell. The Powders, of which they are to be composed, may be chosen according to the Intention of the Physician, and the particular Case or Constitution of the Patient for whose Use they are designed. Examples may be seen in the *Cysta Medica Hafniensis* of *Thomas Bartholine*, under the Article *Trochisci odorati*. They are rarely an extemporaneous Prescription, but are kept ready for Sale in the Shops. The *Candelæ fumales Francofurtensium*, in *Schroder's Pharmacopæia*, are prepared thus:

Take of Benjamin, sixteen Ounces; of Aloes-wood, Rose-wood, yellow Sanders, and Ladanum, each four Ounces; of Olibanum, Mastich, and Cloves, each three Ounces; of white Sugar, two Pounds; and of the Coals of the Lime-tree, four Pounds and an half: Reduce all to a fine Powder, and, with Mucilage of Gum Tragacanth, made with Rose-water, that of Marjoram and Lemon-peel, with the Addition of a little liquid Storax and Turpentine, form the Candles into any Shape.

The same Composition is in the *Dispensatorium Ratibonense*. The *Candelæ fumales* of the *Pharmacopæia Argentoratensis*, which, in the *Pharmacopæia Augustana*, are called *Candelæ pro suffitu secundæ*, are prepared thus:

Take of Styrax Calamita, and Charcoal of the Willow, each two Ounces; of Benjamin, one Ounce; of Cloves, half an Ounce; and of Ladanum, six Drams; which, with Cyprian Turpentine, and Mucilage of Gum Tragacanth, made with Rose-water, are to be reduced to a proper Form.

The *Candelæ pro suffitu*, in the *Dispensatorium Hafniense*, which, in the *Pharmacopæia Augustana*, are called *Candelæ pri-*

mæ, contain more Ingredients than those already mentioned; but what, in the *Pharmacopæia Antwerpensis*, are called the *Candelæ odoriferæ*, differ from them all, in having an Addition of Musk and Camphire. To these we may add the *Candela contra Subitanea*, which *Ludovici*, in his *Pharmacopæia*, borrows from the *Collectanea Wurtemburgensia Euphorista*, and ordered to be prepared thus:

Take of Male Frankincense, an Ounce and an half; of Female Frankincense, two Ounces; of white and yellow Amber, each an Ounce; of Camphire, half an Ounce; of Mastich, two Drams; of red Myrrh, one Ounce; of Benjamin, Angelica, and Burnet, each half an Ounce; of rasped Hartshorn, an Ounce and an half; of Wax, two Pounds. Let such of the Ingredients as require pounding, be pounded, and added to the melted Wax; out of which Mass let Candles of the common Form be made, upon Wicks consisting of three hempen, three silken, three gilt, and three silverized Threads, twisted together: After which, for the sake of Ornament, we sometimes see small Pieces of red Coral, Mother of Pearl, Entaglia, and Dentalia, fixed in their Surfaces.

CANDELARIA, or CANDELA REGIA. Names for Mullein, or VERBASCUM, which see.

CANDIDUS, CANDOR. The same as ALBUS, ALBEDO; but often used metaphorically to signify Sincerity of Mind. See ALBEDO.

Candidare, in *Theat. Chymic. Vol. 5.* is called the fourth Regimen, and ascribed to the Sun. *Castellus*.

CANDISATIO. Candying, applied only to Sugar. See SACCHARUM.

CANDOU *Purchasii*, *Jonst. Dendrol. Arbor Maldivensis*. A Tree much like the Cork-tree, as to its Wood, and of the Height of the Walnut-tree. The Trunk is fungous, and lighter than Cork, the Bark whitish, and it bears no Fruit. The Wood is cut into Planks, and serves for Fuel; and is very useful on another Account; for, by the Help of it, they will draw up a thousand Weight from the Bottom of the Sea, which they do by first tying a Rope about what they want to have raised, which from thence passes thro' a perforated Piece of this Wood, or perhaps two or more Pieces, as they shall think sufficient for the Purpose. *Raii Hist. Plant.*

CANDUM, or rather CANTHUM, Sugar-candy. *Blancard*. See SACCHARUM.

CANELA. A Word which, as *Fuchsius* says, *Myrepsus*, and other later Greeks, as well as *Averroes*, and the rest of the Arabian Writers, use for what we now call Cinnamon, or rather Cassia. *Myrepsus*.

CANELLA. See CINNAMOMUM. *Blancard*.

CANELLA ALBA, *Parkinson. Theat. 1581. Raii Hist. 2. 1802. Canella alba quorundam, J. B. 1. 461. Cinnamomum sive Canella tubis minoribus alba, C. B. Pin. 409. Cassia lignea Jamaicensis, cortice acri candicante, Pluk. Phytog. 81. Cassia lignea laurifolia Americana, cortice albo, valde acri & aromatico, Pluk. Almag. 89. Tab. 81. Arbor baccifera laurifolia aromatica, fructu viridi calyculato racemoso, Philosoph. Transact. N^o. 192. p. 465. Cat. Jam. 165. Sloan. Hist. 2. 87. Tab. 191. Canella Cubana, *Jonst. Dendr. 165. Arbor Jucadice, Nieremb. 294. Arbor cujus cortex Gingiber æmulatur, Laet. 24. THE WILD CINNAMON-TREE.**

This is commonly, but falsely, call'd *Cortex Winteranus*; it has a Trunk about the Thickness of one's Thigh, rising to about twenty or thirty Foot high, having many Branches and Twigs hanging downwards, making a very comely Top. The Bark consists of two Parts, one outward, and another inward: The outward Bark is as thin as a mill'd Shilling, of a whitish ash or grey Colour, with some whiter Spots here-and-there upon it; and several shallow Furrows, of a darker Colour, running variously thro' it, making it rough, of an aromatic Taste. The inner Bark is much thicker than Cinnamon, being as thick as a mill'd Crown-piece; smooth, of a whiter Colour than the outward, of a much more biting and aromatic Taste, something like that of Cloves, and not glutinous like Cinnamon, but dry, and crumbling between the Teeth. The Leaves come out near the Ends of the Twigs, without any Order, standing on Inch-long Foot-stalks; they are each of them two Inches long, and an Inch broad, near the End where broadish and roundish, being narrow at the Beginning, from whence it augments in Breadth to near its End, of a yellowish-green Colour, shining and smooth, without any Incisures about its Edges; and somewhat resembling the Leaves of Bay or *Laurocerasus*. The Ends of the Twigs are branched into Bunches of Flowers, standing something like Umbels, each of which has a Foot-stalk, on the Top of which is a Calyx, made up of some Foliola, in which stand five scarlet or purple Petala, within which is a large Stylus. To these follow so many calyculated Berries, of the Bigness of a large Pea, roundish, green, and containing within a mucilaginous pale-green thin Pulp four black shining Seeds, or Acini, of an irregular Figure.

All the Parts of this Tree, when fresh, are very hot, aromatic, and biting to the Taste, something like Cloves, which is so troublesome as sometimes to need a Remedy from fair Water.

It grows in the low Land, or *Savanna Woods*, very frequently, on each Side of the Road, between *Passage-port* and the Town of *St. Jago de la Vega*, in *Jamaica*, in *Antigua*, and other the *Caribbee Islands*.

The Bark of this Tree is what is chiefly in Use, both in the Plantations of the *English*, between the Tropics in the *West-Indies*, and in *Europe*; and is without any Difficulty cured, by only cutting off the Bark, and letting it dry in the Shade.

It is in Use in the *West-Indies*, by the more ordinary sort of People, in place of all other Spices; being thought very good to consume the immoderate Humidities of the Stomach, help Digestion, and expel Wind.

It is likewise, as well there as in *Europe*, thought a very good Remedy against the Scurvy, and to cleanse and invigorate the Blood; being, in *London*, at Druggists and Apothecaries Shops, used for those Purposes, under the Name of *Cortex Winteranus*, which it is not, but may very well supply its Place. It is, in the *West-Indies*, mixed and given with Steel, and other Medicines; but if the Patient be any way of a hot Constitution, it does more Harm than Good, being very warm.

Rum, a vinous Spirit drawn from Molossus, or bad Sugar fermented with Water, if it be mixed with some of this Bark, it loses, in part, its loathsome empyreumatic Smell.

This Bark, if mixed with Water, and distil'd *per Vesicam*; yields an aromatic Oil, sinking to the Bottom of Water like Oil of Cloves, with some small Quantity of which it being mixed, has been sold for true Oil of Cloves. *Peter Martyn* mentions it under the Name of *Cortex, Cinnamomi Saporem, Gingiberis Amaritudinem, & Caryophylli suavem Odorem, præ se ferens*. *Nic. Monardes* describes it under the Name of *Lignum Aromaticum*; *Clusius* calls it *Lignum, seu potius Cortex Aromaticus*; and I question not but this is the same with the white Cinnamon, or the *Canella alba*, in some other Authors. *Linschoten*, in his *Description of America*, translated into French, gives an Account of it under the Name of *Arbre ou les Pigeons nichent*. *Dr. Trahan* calls it *Winter's Bark*, or *West-Indian Cinnamon-tree*; *Hernandez* and *Ximenes*, *Caminga*.

But it may be doubted, whether this be the *Ascop* of *Havot*. *Phil. Trans. Abr. Vol. 2. p. 665. per Sir Hans Sloane*.

This Bark is accounted a Specific against the Scurvy, and is a good nervous Medicine, and useful in Palsies and Convulsions. It is likewise of Service against Diseases of the Stomach and Bowels. *Miller's Bot. Off.*

CANEON, κανέον, κανέον, κανέον, κανέον, κανέον, is a Basket, according to *Hesychius*. *Κανέον*, in *Hippocrates, Lib. 1. & 2. πρὸς γυναικ.* signifies the Cover of a Pot, thro' which, by means of a hollow Cane or Reed, the Vapour is convey'd in uterine Suffumigations.

CANICACEUS, κανικαῖος. Furfuraceous or branny. It is derived from

CANICÆ. Bran, or rather coarse Meal, so called from *Canis*, a Dog; because it was Food for Dogs. Hence *Panis canicaceus*, very coarse Bread. *Blancard*.

CANICIDA, *Cynoestonum*, κυνοκτόνον. The same as *ACONITUM*.

CANICIDIUM. A Word used by some Anatomists for a Dissection of living Dogs. *Castellus*.

CANICULA, κυνιδιον. A Diminutive of *CANIS*. Also the Dog-star; whence

CANICULARIS, applied to the Time when the *Canicula*, or Dog-star, rises and sets with the Sun. The *Dies Caniculares* begin on the Nineteenth of *July*, and end the Twenty-seventh of *August*. *Hippocrates* pronounces it improper to purge during these Days. *Paracelsus* affirms, that these Days favour the Generation of Worms.

CANINA APPETENTIA. See *BOULIMOS*.

CANINA BRASSICA. See *MERCURIALIS*.

CANINI DENTES. See *DENS*.

CANINA LINGUA. See *CYNOGLOSSUM*.

CANINA MALUS. See *MANDRAGORA*.

CANINA RABIES. See *HYDROPHOBIA*.

CANINUS SENTIS. See *CYNOSBATON*.

CANINANA, (*Jonst.*) is a Serpent of *America*, a Foot and a half, or two Feet, in Length, green on the Back, and yellow on the Belly. It is accounted one of the least venomous, creeps after Men, and suffers itself to be handled without doing any Harm. The *Americans* eat it, after cutting off the Head and Tail. It contains much volatile Salt and Oil.

It is used in the Antidotes of the *Indians*, as the Viper is in *Europe*, upon a Supposition, that it resists Poison.

It is called *Caninana* from *Canis*, a Dog; because it follows Men, and suffers itself to be taken in the Flands like a Dog.

CANIRAM, H. M. *Malus Malabarica, fructu corticose amaricante, semine plano compresso*, D. Syen.

It is a tall spreading Tree, with a Trunk as big as two Men can grasp, which, as well as the larger Branches, is cover'd

with an Ash-colour'd, blackish, or reddish Bark. The small Branches are of a smutty Green, full of Joints, and covered with a bitter Bark. The Leaves grow by Pairs at the Joints, are of a round-oblong Form, and extremely bitter. The Flowers grow in Umbellas, at the Joints of the small Branches, and consist of four, five, and sometimes six small Leaves, of a watry-green Colour, cuspidated, and of a faint, tho' not unpleasant, Smell. The Fruit is a round, smooth; Gold-colour'd Apple, whose Pulp, when ripe, is white and mucilaginous, and covered with a thick and brittle Rind: This Pulp, and the Seed contain'd in it, are of a very bitter Taste; and the whole Tree is remarkable for its Bitterness. It blossoms in the Summer, and bears Fruit in the rainy Season.

The Root, in Decoction or Infusion, is cathartic; and useful in pituitous Fevers, the Colic, Gripes, and Fluxes of the Belly: The Decoction also makes a good Fomentation for the Gout. The same, mixed with Cows Milk, if the Head is washed therewith, is beneficial in the Vertigo and Melancholy. The Bark, bruised and mixed with the Water in which Rice has been steep'd, represses a Flux of yellow Bile. The express'd Juice of the Leaves, given in a Decoction, eases Pains of the Head; but, drank in a large Quantity, has the Effects of Poison, and causes Death; against which the only Remedy is human Dung. One or two of the Seeds, eaten every Day for two Years together, as it is pretended, are of such Virtue, as to render the venomous Bites of the Serpent, called *Cobra Capella*, of no Effect. *Raii Hist.*

CANIRUBUS, quasi *Rubus Caninus*. The same as *CYNOSBATOS*, which see.

CANIS. The Dog, a well-known Animal, thus distinguished:

Canis, *Offic. Schrod. 5. 274. Ind. Med. 26. Schw. Quad. 73. Aldrov. de Quad. Digit. 482. Jons. de Quad. 122. Mer. Pin. 168. Charlt. Exer. 26. Raii Synop. A. 175. Gefn. de Quad. Digit. 213. THE DOG.*

The *Latin Canis*, and the *Greek κύν*, correspond to our *English Word Dog*, and *Catulus*, or *Catellus*, to what we call *Whelp*. As the Shapes, Natures, and Properties of these Animals are too well known to require any Description, we shall only, on this Occasion, consider the several Uses to which they are applied in Medicine. The Flesh of Dogs, then, is not only used as an Aliment by the Inhabitants of *China*, but also look'd upon as a Delicacy by several Sorts of People in *Asia*, *Africa*, and *America*. *Des. Marchais Voyage en Guinée, Tome 2. & Journal des Sçav.* That it was of old used by the *Greeks*, is obvious to any one who has read the Works of *Hippocrates*; for, in his second Book *de Dieta*, when speaking of the Qualities of several Sorts of Flesh, he tells us, "That the Flesh of Dogs is of a heating, drying, and corroborating Nature, but does not easily pass off by Stool; whereas that of Whelps is of a moistening lubricating Quality, and is easily discharged that way." In his Book *de Morbo Sacro*, he informs us, That epileptic Patients were forbid the Use of Dogs Flesh, because it produces violent Commotions in the Intestines. In his Book *de internis Affectionibus*, he mentions Dogs Flesh, as also that of Hares and Birds boil'd, among the Number of those which are lightest, and of the most easy Digestion. In his Book *de Superfatatione*, he recommends boil'd Whelps to be eaten by Women, in order to promote Conception. In his Treatise *de internis Affectionibus*, he also orders boil'd Whelps to be used, as common Food, by dropsical Patients; and in an *Hepatitis*, after the Disease is come to a Crisis. *Pliny*, in the fourth Chapter of his twenty-ninth Book, informs us, that Whelps were not only used as other Aliments by the *Romans*, but also made a Part of their Sacrifices to the Gods. If we reflect upon the Nature and hot Constitution of Dogs, and consider that their Food is generally such as the Animal Kingdom affords, it seems highly probable, that their Flesh, beyond that of all Fowls and Quadrupeds commonly used in Food, if we except those of the ravenous Kind, and such as feed on Insects, affords what we commonly call a strong Nourishment, or such as is of a pretty alkaline Nature; and consequently not improper for heating those of cold phlegmatic Constitutions, and such as abound with a peccant Acid. The *Europeans*, however, generally abstain from Dogs Flesh, till Necessity, and that Love of Life which is natural to Mankind, obliges them to use it. Live Whelps are sometimes applied to the Abdomen, in order to allay Colic Pains, in Cases where the Cause of the Disorder may be removed by a kindly and cherishing Heat. *Bartholine*, in the *Acta Medica & Philosophica Hafniensis*, Cent. 6. *Hist. 53.* tells us, that a Dog, when applied to the Abdomen, after he became warm by the Heat of the Patient, vomited very violently; upon which the Patient's Colic Pains were immediately abated. *Borelli, Cent. 3. Obs. 28.* informs us, that the Gout is surprisingly relieved by Whelps lying in Bed with the Patient; and that they contract the Disorder so as to be scarce able to walk; the afflicted Person receiving in the mean time a singular Relief. If the Words of this Author are founded upon real Facts, they suggest some Things of the greatest Use and Importance to every Physician:

“ For, says he, tho’ we are ignorant of the internal Disorders
 “ of some Patients, and know not the particular Part affected;
 “ and tho’ we want Windows, which *Momus* of old wished
 “ for, in order to discover the disordered Part; yet this may
 “ be discovered in other less noble Animals, for which Purpose
 “ Whelps are to be used. When these have lain in Bed for
 “ fifteen Days with the Patient, and lick’d up the Remains of
 “ his Aliments and his Spit, they contract a Disease of the like.
 “ Nature; and, upon being opened, the Part affected in them
 “ corresponds to that disordered in the Patient: Thus, when
 “ the particular Seat and Nature of the Disease is known, pro-
 “ per Remedies may be the more easily applied.” *Bar-*
tholine, in his *Hist. Anatom. Cent. 3. Hist. 66.* informs
 us, that *Fludd*, an *English* Physician, is said to have
 transplanted the Gout of a certain Patient to a House-dog
 who slept with him; and that the Dog was afterwards periodi-
 cally rack’d with the Disorder, as his Master had formerly
 been.

That a Dog may be affected by the gouty Matter of a Man;
 I think highly probable, from a Case which happen’d in *Decem-*
ber 1742. within my own Knowledge. A Gentleman, terribly
 afflicted with the Gout, took a mercurial Purge, which affected
 the Salival Glands so as to make him spit a little. As he sat in
 his Chamber with a Bason in his Lap, in order to receive the
 Saliva, another Gentleman coming into the Room, he set the
 Bason aside, for the sake of Decency, and spit two or three
 times on the Floor. A small Spaniel in the Room lick’d up the
 Saliva thus discharged; the Consequence of which was, that
 the Dog was, in less than half an Hour, seiz’d with violent
 Convulsions, and died in about ten Hours.

That Dogs may catch the Diseases of those with whom they
 lie in Bed, is sufficiently confirm’d by a Case in the *Epheme-*
rides Germanicæ Curiosæ, Vol. 2. o. 183. where we read of a
 Dog’s being infected with the Small-pox. But as a Man, who
 catches the Disease of another, does not by that means relieve
 the Patient; so it seems consonant to Reason, that when a Pa-
 tient feels any Relief from the Application of a Dog, it must
 only be in those Cases, in which the fomenting Heat of the Ani-
 mal attacks the Disease, by opening the Pores, procuring a free
 Transpiration, and thus giving Vent to the morbid Matter. In
 Cases of this Nature, it is by no means inconsistent with Rea-
 son, that the Dog, in consequence of the morbid Exhalations
 admitted into his Body, should be seized with that particular
 Species of Disorder from which he has freed the Patient. As
 we observe, that Dogs generally deterge, cleanse, and conse-
 quently promote the Consolidation of their Wounds by licking
 them; hence Dogs may, with great Advantage, be admitted to
 lick the Wounds and Ulcers of Men; by which they sometimes
 suffer, if the Matter they lick is retain’d in the Stomach, con-
 vey’d to the Vessels, and mixed with the Fluids of their Bodies.
 This is sufficiently proved by a Case in the *Ephemerides Germa-*
nicæ Curiosæ, 1. a. 4. o. 51. where we have an Account of a
 Dog who became itchy by licking a scorbutic Patient, who, by
 that very means, got quit of his Disorder. Some time ago
 there lived near *Paris* a certain Man, who, from the Place of
 his Residence, was called the *Physician of Chaudrai*; and who,
 without the Use of any other Means, cured many inveterate
 Wounds. *Colonne, Histoire Naturelle de l’Univ. Tome 1.*
 Dogs, after their Death, afford a great many Things useful in
 human Life; but we shall only specify such as are most com-
 mon. Thus, for Instance, the Skin is by some recommended
 as an excellent Covering or Wrapper for the Leg, in order to
 allay the Pains of the Gout. *Ephemerides Germanicæ Curiosæ,*
D. 3. a. 2. o. 35. But, in order to prevent the Gout, the Dogs
 Skin ought, according to *Boceler*, to be prepared with some
 astringent Substance, such as Galls or Alum. All Leather is
 tan’d by means of some astringent Substance, that its Pores
 being contracted, it may become the thicker. If, therefore,
 tan’d Dogs Skin is sufficiently thick to resist the external Cold
 which excites the arthritic Pains, it may very properly be
 recommended to such as dread an Attack of the Gout. These
 Skins are commonly used for Gloves in the Summer-time, with
 a View to keep the Skin gratefully cool, and agreeably smooth;
 for, as the external Surfaces of these Gloves are very smooth,
 they do not admit the Rays of Heat, but reflect them as they
 fall upon them, as polish’d Bodies do, and consequently they
 prevent the Sweating of the Hands. The Fat of a Dog is
 recommended beyond that of other Animals, on account of its
 penetrating and vulnerary Quality. Many order it to be exhi-
 bited in Vinegar, spread upon Bread, or mix’d with the Ali-
 ments, as a proper Remedy against the Pthipsis and Epilepsy.
 Others roast a Dog, and, with great Success, exhibit the Fat
 which drops from him, in a Pthipsis. *Etmuller.* In vulnerary
 Decoctions and Potions it is of singular Service, where an acrid
 Quality is to be corrected, or a Rigidity of the Parts removed:
 But we must take care, that it be not old; in which Case it
 generates a rancid Acrimony in the Body. When it is fresh, it
 may be given from a Scruple to a Dram and an half. “ I know,”
 “ says *Konigius*, that some People, by boiling nervous Plants in
 “ Dogs Fat, prepare an excellent anodyne Ointment for Pains

“ and Luxations of the Joints; as also for Pains after Child-
 “ birth, when mix’d up with *Peruvian* Balsam, and the distill’d
 “ Oils of Cinnamon, Mace, and Mint.”

Forestus (in *Obs. Med. L. 10. Obs. 85. in Scholiis*) informs
 us, that in a Palsy of the Feet, produced by Colic Pains, after
 Cupping, and the Use of Baths prepared of heating Substances,
 he successfully used, by way of Ointment, the Fat of brown
 Whelps, boil’d in Water till their Bones were separated from
 each other, taking the Fat off the Surface of the Water when
 cold: Authors of Note and Reputation have affirm’d, that
 the Brain of a Dog, if eaten, mitigates and allays a Mania, as
 we see in the *Ephemerides Germanicæ Curiosæ, D. 3. a. 4. o.*
125. Tho’ we cannot comprehend what specific Virtues the
 Brain of this Animal can have, in lessening or removing the
 Cause of a Mania; yet we shall not dare flatly to contradict
 these Authors. We are, however, inclined to think, that the
 Effects, supposed to be produced by this Medicine, are in reality
 those of other proper Remedies used at the same time; and that
 it only acts as a Deobstruent, in consequence of the Aromatics;
 in Conjunction with which it is exhibited. The Dung of Dogs
 is called *Album Canis*, *Album Græcum*, and *Cynocoprus*, from a
 Greek Word signifying the Excrements of this Animal. That
 Species is best which is discharged in hot Weather by Dogs fed
 upon Bones, and such as have little or no Drink allow’d them.
 This Medicine is recommended for internal Use, not only in
 vulnerary Decoctions, intended for the Consolidation of
 Wounds, but also for exciting a Diaphoresis, resolving grumous
 Blood, and destroying an Acid in the *Primæ Viæ*. Concern-
 ing its antidyenteric and other Qualities, *Etmuller*, in *Tome 2.*
 speaks thus: “ The Dose is from half a Dram to two Drams;
 “ with the Addition of a little Sugar; in a Vehicle either of
 “ simple or chalybeated Goats Milk; for this Dung, tho’ easily
 “ procured, is nevertheless a valuable and efficacious Remedy
 “ in Dysenteries, and in all Hæmorrhages, those of the most
 “ desperate Kind not excepted. *Franciscus Joel*, in his *Praxis*
 “ de *Dysenteria*, *Forestus*, in his *Obs. Med.* and *Mendererus*,
 “ in his *Medicina Militaris*, highly recommend it on several
 “ Accounts: And I myself, says he, by means of this Dung
 “ alone, happily cured a Country Woman, who had been
 “ afflicted with an Uterine Hæmorrhage for more than four
 “ Weeks.” When mix’d with Gargarisms, it is recommended
 as a Specific in the Cure of Quinsys, and Inflammations of the
 Tonsils. According to *Etmuller*, “ It was used in the Days
 “ of *Galen*. Sometimes the Powder of it is blown into the
 “ Throat: Sometimes the Dung itself is mixed with Honey,
 “ and applied to the Parts affected; and at other times it is
 “ mixed with Cataplasms and Ointments, prepared with an
 “ Intention to discuss and maturate. It discusses, maturates,
 “ and breaks Abscesses, prepares a Way for the Discharge of
 “ Pus; and heals Ulcers of the Fauces, when applied to the
 “ Part affected in the above-mentioned manner.” The *Cata-*
plasma Cynanchicum, in *Bate’s Dispensatory*, is prepared thus:

Take of *Album Græcum*, one Ounce; of the Conserve of
 red Roses, two Ounces; and of the *Syrupus de Meconio*,
 a sufficient Quantity: Make into a Cataplasm, to be ap-
 plied under the Chin from Ear to Ear, after Venesection.

That the Fragments of half-corrupted Bones, separated from
Album Græcum, often prove an excellent Remedy for the Tooth-
 ach, we are informed by *Andreas Elias Buchner*, in his *Mis-*
cellanea Medico-physico-mathematica. In the *Pharmacopœia*
Parisiensis, the *Album Græcum præparatum* is made first by dry-
 ing it, then levigating it on a Marble, and forming it into
 Troches, with Water of Shepherds-purse. Whoever considers
 the hot and active Nature of Dogs, must readily perceive, that
 their Excrements are more hot and acrid than those of most
 other Animals, especially of the domestic Kind: Hence its Ef-
 fects seem to be produced by a stimulating, corroding, resolvent,
 and aperient Acrimony. To this acrimonious Quality all the
 above-mentioned Effects are owing; as also its Efficacy in
 internal Hæmorrhages, in which Resolvents often prove useful,
 by restoring a free Circulation to the Blood, by whose Stagna-
 tion spasmodic Contractions, and the Effusions of Blood depend-
 ing on them, are produced. Concerning the Effects of this
 Medicine in Dysenteries, we cannot help entertaining a Doubt,
 since no one has as yet dared to affirm, that acrid Substances
 are proper in this Case: But when *Album Græcum* is exhibited
 with Sugar and Milk, in the room of which may be substituted
 some Oil or Fat, and mild Broth, it can no longer exert its
 acrid Qualities; but, if exhibited in a moderate Dose, is gently
 saponaceous and abstergent, and consequently proper to dispose
 the acrid Water, which irritates the Intestines, to a Discharge of
 Blood, for Evacuation. And perhaps such an oleous Medicine,
 impregnated with *Album Græcum*, received into the Vessels,
 may, by resolving Obstructions, and restoring a free Circula-
 tion to the Blood, be said to cure that Species of Hæmorrhage
 which happens in a Dysentery. But we cannot admit, that
Album Græcum is proper to be exhibited in every Species of
 Dysentery; when, for Instance, the Blood is too much resolved
 by

by an Admixture of something acrid and putrid; since, in this Case, even the most gentle Stimulus does Harm. The acrid and corrosive Quality of Dogs Excrements is sufficiently attested by those who, often treading among them, have the Soles of their Shoes sooner destroy'd than those who walk in Ground stain'd with the Dung of Cattle. From what has been said, I think we may comprehend with what View some order *Album Græcum* to be put in Draughts, intended to promote the Eruption of the Small-pox; because every acrid stimulating Substance generally produces that Effect. *Philosop. Transf.* We do not assert, that this Medicine is proper in all Cases of this Nature; our Intention is only to point out by what Quality these Excrements promote the Eruption of the Small-pox. Powder of *Album Græcum* is, for the same Reason that other acrid Substances are used, applied to cleanse and absterge Ulcers, become foul and sordid by the preposterous and unskilful Use of pinguious Substances. In consequence of the powerfully resolvent Quality of *Album Græcum*, a Spoonful of it, diluted in Wine or Brandy, was the Secret of a certain Soldier against quartan Fevers. *Ephemerides Germanicæ Curiosæ, Decad. 2. a. 5.* We see no Reason why *Album Græcum* should be recommended as a Specific in Quinsies, unless because Dogs are frequently afflicted with this Disorder; or because, in a Quinsy, the Patients breathe with open Mouths, and, like Dogs out of Breath, hang out their Tongues. The *Oleum Catellorum*, in the *Pharmacopæia Parisiensis*, is Oil of Olives, in which very young Whelps are boiled to a Dissolution of the Compages of their Bones; and in which, after it is strain'd and express'd, the Tops of Origanum, Pennyroyal, Mother of Thyme, St. John's-wort, and Marjoram, are put, and the Whole is exposed to the Sun. *Forestus, Obs. Méd. L. 10. Obs. 82.* informs us, that, in paralytic Cases, he has known happy Effects produced by the Oil in which live Whelps, without any other Ingredient, have been boiled. This Medicine is intended for external Use, in Cases of Contractions, and in Cases where Rigidity is to be relax'd, or Obstructions opened. In the *Pharmacopæia Bruxellensis*, and that of *Lemery*, young Whelps are order'd to be boil'd in Oil, with Earth-worms; and to the Liquor, when strain'd off, pure Turpentine, and Spirit of Wine, are added; by which means the Medicine is render'd more resolvent, corroborative, nervous, and proper for dissolving Tumors, and removing Rheumatisms. *Konigius* also highly recommends it in violent Pains arising from Gun-shot Wounds. The *Unguentum de Catello*, in *Lemery's Pharmacopæia*, besides the Whelp and the Earth-worms, has also for its Ingredients emollient and aromatic Vegetables, which are boil'd in mild Oils, and Spanish Wine, to a Consumption of the superfluous Humidity; after which the Oil is strain'd off, and a proper Quantity of Stags Marrow, and Goats Suet, is added.

This Medicine is recommended for external Use, as a Resolvent; and in Cases where the Intention is to corroborate the Nerves. The *Balsamum e Catulis compositus*, in *Schrader's Pharmacopæia*, is prepared of live Whelps, suffocated in White-wine, and boil'd to a Balsam, with nervous Herbs, Oils, and Resins. This Medicine is recommended against Contractions of the Limbs, and Sciatic and Arthritic Pains.

CANIS CARCHARIAS, Offic. Charlt. Pis. 7. Aldrov. de Pisc. 383. Bellon. de Aquat. 60. *Canis Carcharias seu Lamia*, Gefn. de Aquat. 173. Raii Ich. 47. Ejsd. Synop. Pisc. 18. *Canis Aristoteli seu Carcharias*, Jons. de Pisc. 13. *Canis Galeus*, Salv. de Aquat. 132. *Lamia*, Rondel. de Pisc. 1. 390. THE WHITE SHARK.

This Animal is found both in the *Mediterranean*, and in the main Ocean. The Teeth of the Serpent, and also of this Fish, when petrified, are the *Glossopetræ* of the Shops. Its Teeth are esteem'd good against Poisons. Women hang them about the Necks of Children, because they are commonly thought to assist Dentition, and prevent Frights. *Rondeletius*. The *Glossopetræ* are by some thought to possess an alexipharmac Quality. Dale.

CANITIES, *πολίτις, πολίσις*, Greyness of the Hairs; which is either ordinary, as in old Age; or extraordinary, as in Youth.

CANNA. The same as ARUNDO.

CANNA FISTULA. The same as CASSIA FISTULA. Rieger.

CANNA INDICA. The same with CANNACORUS. Rieger.

CANNA SEPIARIA. The same as the *Arundo vulgaris*. See ARUNDO.

CANNABINA, Bastard-hemp.

The Characters are:

It is a Genus, whose Flowers have no Petals, but consist of a Number of Threads, and are barren; for the Seed is produced on Female Plants, which have no visible Flower, but have membranaceous Seed-vessels, which inclose triangular Seeds, which are, for the most part, oblong. *Miller's Diet.*

Miller, and *Boerhaave*, *Ind. Alt. Plantarum*, Vol. 2. p. 105. enumerate two Species of this Plant: The

Cannabina Cretica florifera: And the

Cannabina Cretica fructifera.

But *Boerhaave*, in the same Work, Vol. 1. p. 159. specifies some other Plants under the Name of *Cannabina*.

The Characters are:

It has a hollow upright Galea, with a Beard divided into three Parts, the middle Segment being the largest. The Flowers grow in Whorles, and resemble those of the *Lamium*. The Flower-cups are large, aculeated, and closely set together, as in the *Clinopodium*; the Segments of the Cup, or Calyx, ending in sharp Prickles or Aculei; the Leaves resemble those of Hemp.

Of this he enumerates three Species.

1. *Cannabina flore purpurascens, Galeopsis procerior, caliculis aculeatis, flore purpurascens*, T. 185. *Urtica aculeata, foliis serratis*, C. B. Pin. 232. *Cannabis sylvestris quorundam, urticae inerti similis*, J. B. 3. App. 854. *Lamium annuum procerius, urticae folio, verticillis spinosis*, M. H. 3. 386. a.

2. *Cannabina, flore albo. Galeopsis procerior, caliculis aculeatis, floribus candidis*, T. 185. *Urtica aculeata, foliis serratis, floribus candidis*, C. B. Pin. 232. a.

3. *Cannabina flore magno luteo, labiis purpureis. Galeopsis angustifolia, flore variegato*, T. 185. *Cannabis spuria angustifolia, variegato flore*, Polonica, Barrell. Ic. 1158. Obs. 241. *Lamium annuum procerius, urticae foliis, flore luteo amplo, labio purpureo*, M. H. 3. 386. *Lamium cannabinum aculeatum, flore specioso luteo, labiis purpureis*, Plukn. Ph. 41.

4. a. *Boerhaave's Index alter Plantarum*, Vol. 1. p. 159. CANNABIS, Offic. Chab. 478. Ger. 512. *Cannabis sativa*, MANURED HEMP. Park. 597. C. B. 320. Hist. Oxon. 3. 433. Raii Hist. 1. 158. Synop. 53. Boerh. Ind. A. 2. 104. Tourn. Inst. 535. Buxb. 53. *Cannabis mas & femina*, J. B. 3. 447. Ger. Emac. 708. HEMP. Dale.

Hemp is a very useful Plant for making Cordage, and all Things of that Kind. It bears a Leaf much like the Ash, but of an ungrateful Smell; on a long empty Stalk. The Seed is round, which, if eaten too freely, causes Impotence. The Juice of the green Plant, instil'd into the Ears, mitigates the Pains therein. *Dioscorides*, Lib. 3. Cap. 165.

Wild Hemp shoots forth twiggy Stalks like the *Althæa*, but blacker, rougher, and smaller, a Cubit high. The Leaves are like those of the common or cultivated Hemp, only rougher and blacker. The Flowers are reddish, and like those of the *Lychnis*; and the Seed and Roots are like those of the *Althæa*.

The Root boiled, and applied by way of Cataplasm, mitigates Inflammations, dissolves Tumors, and dissolves topaceous Concretions about the Joints. The Bark thereof is also twisted into Cordage. *Dioscorides*, Lib. 3. Cap. 166.

The Stalks of Hemp grow to be five or six Foot high, angular, and covered with a strong tough Bark; and cloath'd with many digitated or finger'd Leaves, each Leaf composed of five, six, or seven Parts, long and narrow, sharp-pointed, and serrated about the Edges, the middlemost being longest, set together upon one long Foot-stalk; they are green above, and hoary underneath, and rough in handling. The Flowers grow toward the Tops of the Stalk, in that they call the Male, in Bunches, small and staminate, which perish without bringing any Seed; that being produced by the Female only, without any previous Flowers.

The Seed of Hemp, which is the only Part used in Physic, being boiled in Milk till it cracks, is accounted good for old Coughs, and a Specific to cure the Jaundice. It has been formerly believed to render Persons inactive in Venereal Affairs; but that is not at all likely; for it not only causes Hens to lay Eggs in Plenty, if given moderately; but the famous *Bangue*, so much used by the *Persians* and *Indians* to promote Veneries, is a Species of Hemp. *Miller's Bot. Off.*

CANNACORUS *latifolius vulgaris*, Plt. Tournefort. *Arundo Indica latifolia*, C. B. J. B. *Harundo florida*, Ger. *Calamagrostis*, Lob. *Arundo Indica florida*, Lob. *Cannacorus quorundam Cannæ Indica*, Gef. Hor. Clus. Hist. Cul & Flos *Cancris nonnullis*, Camp. THE INDIAN REED.

This Plant sends forth several Stalks, about four Feet in Height, of a Finger's Thickness, and jointed at Intervals like other Reeds. The Leaves are broad, large, fibrous, pointed at their Extremity, of a pale-green Colour, and of an herbaceous Taste, mix'd with a little Acrimony. The Flower grows at the Top, and is somewhat like that of the *Gladiolus*, being of a beautiful red Colour. This Flower is a Funnel, divided by deep Jaggs into six or seven unequal Parts; so that, before it is thoroughly open, it seems to represent the Parts of a Crab, whence it is called Crab-flower. After the Flower succeeds a membranaceous Fruit, rounded at three Corners, of the Size of that of the *Ricinus*, and divided into three Cells, containing spherical Seeds, of a dark or blackish Colour. The Root is full of Joints; and surrounded with big Fibres. This Plant grows only in warm Places; the Cold being very injurious to it. It is supposed, that the Leaves whilst are wrapp'd about the

Gum Elemi, belong to this Reed. Its Root is deterfive and aperitive. *Lemery des Drogues.*

Miller takes Notice of five Species of Cannacorus: And there is a sixth. This is the same as the CURCUMA, which see.

CANNI. A Sort of Fish usually fry'd, condemn'd by *Ori-lafius, Med. Coll. Lib. 2. Cap. 58.* as unfriendly to the Stomach, subject to fluctuate, and easily corrupted.

CANNULA. A Diminutive of CANNA; also a Name for several Instruments in Surgery, of various Figures, according to the different Uses made of them in Operations. A Cannula is a Tube made of different Metals, principally Silver and Lead, but sometimes of Iron. They are introduced into hollow Ulcers, in order to facilitate a Discharge of Pus, or any other Substance; or into Wounds, either accidental or artificial, of the large Cavities, as the Thorax, or Abdomen. They are used in the Operation of Bronchotomy; and, by some, after cutting for the Stone, as a Drain for the Urine. Other Cannulas are used for introducing Cauteries, either actual or potential, into hollow Parts, in order to guard the Parts, adjacent to that intended to be cauterized, from Injury. They are of various Figures, as may be seen, Table 23.

CANON, κανόν. A Canon or Rule, according to which any thing is made. *Paracelsus*, when he opposes the *Canons of Physicians* to his Arcana, or secret Remedies, seems to mean by *Canons* a Medicinal Method; and therefore, *de Caducis, par. 4.* he says, that a canonical Case does not take place in all Distempers. Purges, Syrups, and Paregorics, according to him, are canonical Remedies.

CANONIAI, κανονίαι, in *Hippocrates, Lib. de Aere, Locis & Aquis*, signifies those who have strait and not prominent Bellies, but disposed, as it were, by a Canon or strait Rule; or as *Galen*, in his *Exegetis*, explains the Word, ὅσοι καὶ περὶ σαρκίνους τὰς γαστέρας, "strait, and of contracted Bellies." To these are opposed corpulent Persons, who, according to *Hippocrates*, never increase in Height, or become canoniai; but are augmented in Bulk or Thickness. Canoniai, κανονίαι, then, seem to be such as are strait, and tall of Stature, and are fit to be a Canon or Standard for the rest.

CANOPICON, κανοπικόν. A Name in *Dioscorides, Lib. 4. Cap. 166.* for the Pityusa, a Sort of Spurge.

CANOPITE. The Name of a Collyrium for the Eyes in *Celsus, Lib. 6. Cap. 6.*

CANOPUM, in *P. Ægineta, Lib. 7. Cap. 3. & 5.* signifies both the Flower and the Bark of the Elder-tree.

CANSCHENA POU. A Species of MANDARU, which see.

CANSJAVA. See BANGUE.

CANTABRICA. An Herb, discover'd, as *Pliny* says, *Lib. 25. Cap. 8.* in the Time of Augustus, in the Country of the Cantabri in Spain, whence it takes its Name.

CANTABRICA, *Convolvulus minimus*, Offic. Mont. Ind. 39. *Convolvulus minimus, Spicæ foliis*, Ger. 713. Emac. 862. Mer. Pin. 28. Phyt. Brit. 30. *Convolvulus spicæ foliis*, Park. Theat. 172. Raii Hist. 1. 726. *Convolvulus Linariæ folio*, C. B. Pin. 295. Hist. Oxon. 2. 17. *Convolvulus Linariæ folio, affurgens, & humilior*, Tourn. Inst. 83. Boerh. Ind. A. 247. *Volulus terrestris Dalechampii*, J. B. 2. 160. LAVENDER-LEAVED BIND-WEED.

It grows wild in the Fields, flowers in June, and is by some recommended as good against Worms.

CANTABRUM, in *Cælius Aurelianus, Acut. Morb. Lib. 3. Cap. 3.* and other Places, signifies Bran.

CANTACON, Garden-saffron. *Rulandus.*

CANTARELLI. A kind of Worms, called also *Vermes Maiales*, "May-worms," which, being macerated in Oil, are said to endue it with the Virtues of Oil of Scorpions. They are reckoned among the Species of Beetles, and are distinguish'd by the Epithet of unctuous, because, when they are touched, they emit an unctuous, acrimonious, and strong-scented Liquor, which, as *Glauber* says, provokes Vomiting, and purges by Stool and Urine. *Castellus.*

CANTERBURY WATERS.

About twelve Years ago, a Mineral Water was accidentally discovered here. In digging the Ground, they first met with a fat, black Mould, reaching three Foot deep, and gradually changing into another sort of Earth, very fat, and like Butter. This second Layer was too Foot thick, the Colour yellow, something mixed, its Odour strong and mineral; and a Piece of it being for some time exposed to the Sun, it smelt like burning Sulphur. After this they found a Quick-sand, of a darker Colour than the first Earth, mixed with several little Stones, and the Smell still stronger than before. Two Foot farther, under the Quick-sand, a hard Rock appeared, out of which Water gushed with some Violence. They dug five Wells, about seven Foot Distance from each other; one about eight or nine Foot deep from its Surface, and twelve from the Surface of the Ground about it, and reaching the Rock; the other is not so deep by two Foot, and only touches the Sand.

This last is something stronger of the Sulphur; but the other is stronger of the Mineral Spirit and Irony Parts.

Two Drams of the second Layer of Earth, found in Digging, being put into four Ounces of Spirit of Vinegar, there presently arose a considerable Ebullition; and, soon after, the Spirit was tinged with a yellow-brownish Colour, which suffered no Alteration with the Infusion of Logwood, nor with Galls; but, with Oil of Tartar per deliquium, it turned greenish; and, with the Infusion of Lignum Nephriticum, of a pale Red.

The Water, taken up at the Spring, is extremely limpid, but grows something whitish in a Quarter of an Hour, and in half an Hour the Spirit is lost; and the Mineral hangs first on the Sides of the Glass, and then falls gradually to the Bottom. It will not keep quite so well as the Spaw or Tunbridge Water. Its Taste is harsh and austere, the Smell ferruginous and strong, something upon the Sulphur; People say it smells like Gunpowder. It will make the Root of the Tongue of the Drinker blackish. Linen washed in it turns yellow. It will not lather with Soap. The Glasses the Water is dipped with grow yellow, which no Scouring can take off, and are apt to fly. In frosty and cold Weather 'tis so warm as to melt Ice and Snow; in other Seasons 'tis cold, tho' not so cold as some Spring-waters are.

The Weight of this Water varies greatly, according to the Seasons and Weather. In May 1704. it weighed three Grains lighter than common Water, in the Quantity of a Pound. In the Spring 1705. it was equal in Weight to common Water; but was still heavier in the August following, because of the exceeding dry Weather that Summer. But in general, about Midsummer, if the Weather is no ways extraordinary, 'tis nearly equal in Weight to common Water. A single Grain of good Galls will instantly turn a Pint and a half of this Water to a deep Red; Syrup of Violets turns it of a Grass-green; with the Infusion of Brazil, it gives a deep lively Blue; with that of Lignum Nephriticum, first a light Green, then a light Yellow; with the Infusion of Logwood, a blue Black; with that of Fustic-wood, a dusky Yellow; with the Flowers of Pomegranate, a fair Violet; with Tea-leaves, a fine purplish Blue; with good Nantz Brandy, an elegant Sky-colour. It instantly turns a Solution of Sugar of Lead milky; and a Solution of Sublimate also in some small time. Oil of Tartar per deliquium, and Spirit of Vitriol, make no sensible Alteration.

In calm Weather, in Winter especially, a thick oily Film covers the Surface of these Waters with as great a Variety of Colours as the Rain-bow. A Spoonful of this oily Matter, drank, has the Effect of, and composes as much to Sleep as, a moderate Dose of Opium. Some of this Scum, being dried by Evaporation, tasted very fat, and felt so between the Fingers. Some of the Powder being cast upon a red-hot Iron, most of it immediately burnt away with some Sparkling, and what remained was of the Colour of Rust of Iron, and tasted partly styptic and earthy, and partly saltish.

The Water itself, being gently evaporated, yields a yellowish Sediment, more or less according to the Seasons. Last Spring a Quart yielded six Grains of it; but, in September following, the same Quantity afforded nine Grains; whereas a Pound of Tunbridge-water gave but a single Grain of Sediment to Mr. Boyle, as appears by his *Memoirs of Mineral Waters*. This Sediment, being boiled in common Water, made a strong Lixivium, with which Acids caused no sensible Fermentation; but Syrup of Violets turned it green. This Lixivium, being evaporated, yielded a fat sulphureous Salt, which would not coagulate into Crystals. I can get but three or four Grains of it out of ten Grains of Sediment; but, from the Colour and Taste of the Lixivium, I suspect that there is a larger Proportion of saline Particles, which, I conceive, being volatile, evaporate with the Water.

As for Medicinal Virtue; from the many and wonderful Cures they perform, I believe them one of the most excellent Waters of this kind yet discovered in England. The little Well is very useful in Diseases of the Breast, as Astmas, Coughs, Rheums, and Catarrhs. It has cured several that were given over in Consumptions of the Lungs. Most Disorders of the Stomach are cured by this Water. It seldom fails in Rheumatic and Gouty Pains of the Limbs or other Parts; in the Scurvy, Melancholy, Jaundice, Vapours, all sorts of Stoppages, Scabs, Itch, &c. But in the Gravel, Colic, and Green-sickness, 'tis a true Specific, as also in inward Ulcers, if not too far gone.

A Potter in Bolton, who had spent his Substance on Doctors, and was last Spring discharged out of St. Thomas's Hospital as an Incurable, was cured of an Ulcer in the Bladder this Summer, by drinking of this Water for three Months together. In Agues 'tis beyond the Bark: I have seen some rebellious ones, that could not be removed by the Bark, perfectly cured by this Water; and some Constitutions, quite worn out by frequent Relapses of this Distemper, restored. This is also remarkable, that it agrees both with old, decayed, and weak Constitutions. The Water sits pleasantly upon the Stomach, works off by Urine

Urine very-briskly, causes a good Appetite, cheers the Spirits, and procures Sleep. 'Tis not binding, as some other Chalybeats are, but keeps the Body open in most People; and upon some it brings now-and-then a gentle Looseness, which carries off the Distemper. For these four Years I have prescribed it to many sorts of People every Season, and I could never observe any Inconvenience, or ill Symptom, arise from the drinking of it. Dr. Scipio des Moulins, in *Philos. Trans.*

CANTERIUM, CANTHERIUS, *κατάρτιον*. A Cross-beam between two Posts, in the Machine contrived by Hippocrates, *Lib. περί ἀρθρώσεων*, for replacing the dislocated Os Humeri. Gorræus, *Castellus*. See AMBE.

CANTHARIDES. Offic. Schrod. 5. 339. Mouff. Insect. 144. Charl. Exer. 47. *Cantharis major*, *Jonf. de Insect.* 76. Aldrov. de Insect. 476. *Cantharides vulgares officinarum*, *Raii Insect.* 101. SPANISH FLIES. Dale.

Cantharides are Insects of the flying Kind, and a Species of shining Beetle, of a golden, azure, or greenish Colour, and of a fetid Smell. These Flies are found not only on Ash-trees, Roses, Elders, Walnut-trees, Privets, and other Plants, but also among the Corn, which they corrode and destroy. They are also most numerous in the warmer Climates, such as Spain, Italy, and France; but, in Germany, they are rarely found in great Numbers. The Vulgar foolishly believe, that in their Country they only become plentiful once in seven Years; for sometimes larger Swarms of them appear, and seem to have Impulse of the Air. Their Appearance is attended with been drawn from some other Quarter of the World by the a very remarkable and ungrateful Stench. *Ephemerides Germanicæ curiosæ*, Decad. 1. a. 4. o. 186. In Bulk and Colour they sometimes differ very considerably from each other. *Mouffeti Insectorum Theatrum*. The common *Cantharides* of the Shops are about three Fourths of an Inch long, everywhere of a greenish Colour, and having *Antennæ* consisting of short Articulations. *Raii Historia Insectorum*. With respect to the Anatomy of this Insect, the Curious may consult the *Ephemerides Germanicæ curiosæ*, Decad. 2. a. 2. o. 20.

Powdered Cantharides, applied to the *Epidermis* or *Scarf-skin*, not only exulcerate it, but also frequently excite a Heat of Urine, Stranguries, plentiful Discharges of Urine, Thirst, a Fever, and sometimes a Pissing of Blood, and a fetid cadaverous Breath. When used internally, they also excite all the above-mentioned Symptoms. But Authors have observed them to be in a singular manner prejudicial to the urinary Bladder. *Bartholini Historiæ Anatomicæ Cent.* 5. *Hist.* 21. A few Instances, among the many that might be given, will sufficiently confirm the Truth of this. A Girl of six-Years old, after being cured of an Incontinence of Urine, for a Fluxion and Pain of her Eyes, had a Vesicatory of Cantharides applied to the Nape of her Neck, by which a Diabetes, which put an End to her Life, was brought on. *Ephemerides Germanicæ curiosæ*, Decad. 2. a. 7. o. 86. Another Instance we have in the Case of *Braccus* of Padua, who, by the Advice of *Montagnana*, then a celebrated Physician, applying Cantharides to his Knees, voided more than five Pounds of Blood by way of Urine. *Joh. Lindestolpe de Venenis*. A certain Quack gave two Drams of Cantharides, with an Addition of the Sea Scinck, and Satyrion-root, to a certain Man of Distinction, as an aphrodisiac Medicine, which proved fatal to him; for, besides an insatiable Desire of Venery, a Tumor appeared in the Scrotum; and the seminal Matter being exhausted, Blood was discharged in its stead, and the Patient died on the eleventh Day after the Exhibition of the Medicine. *Ephemerides Germanicæ curiosæ*, Decad. 1. a. 9. o. 148. According to *Lanzoni*, *Paré* informs us, that a Courtesan treated a young Man with a splendid Supper, dress'd with Sauces in which Powder of Cantharides had been sprinkled. But, next Day, her unfortunate Guest, discharging Blood from his Anus, and his perpetually erected Penis, died in spite of all the Medicines that could be exhibited for his Relief. A certain Man, upon using Powder of Cantharides mixed with Tobacco, was forthwith seized with a violent Pain of the Head, and a Discharge of bloody Urine. According to *Pliny*, in the fourth Chapter of his twenty-ninth Book, *Cossinus*, a Roman Knight, and noted for the Friendship which subsisted between him and *Nero*, was seized with the Ring-worm; but, unluckily, a Physician, called from Egypt for the Cure of his Disorder, by *Cæsar*, killed him by a Draught prepared of Cantharides. *Langius* suspects, that *Cossinus* was rather killed by the external Application of Cantharides, which, by their caustic Quality, extirpate Ring-worms, Scuffs, Leprosies, hard and callous Excrescences on the Soles of the Feet, and Palms of the Hands, than by the internal Use of Cantharides, which can contribute nothing to the Cure of the Ring-worm. *Langius*, *Lib. 1. Epist.* 47. *Fabricius ab Aquapendente*, in his *Opera Chirurgica*, informs us, that he saw a Suppression of Urine brought on by the Application of Cantharides to the Head; not because these Insects have of themselves a Quality or Power by which they suppress the Urine, but because they promote so plentiful a Secretion of it, that the urinary Bladder, being too

much distended by it, loses its expulsive Faculty, by which means an accidental Suppression of Urine is produced. *Hildanus*, *Obs. Med. Vol. 1.* informs us, that, by the Application of a Cataplasm made of Cantharides to a swelled Knee, besides other terrible Symptoms, a Pain of the Loins, Kidneys, and whole Abdomen, was excited, with so great a Heat of Urine, that the Patient could not, without violent Pain and Shrieks, discharge one Drop of Urine, which, at the same time, was evacuated Drop by Drop, and mixed with Blood. But, which is still more surprising, *Boyle* informs us, that Authors of unquestionable Veracity have affirmed, that some particular Persons, by only holding dry'd Cantharides in their Hands, have felt a considerable Pain about the Necks of their Bladders, and had some of the other Parts, serving for the Secretion of the Urine, remarkably injured. Either the Hands must have been warm, and Blisters or Exulcerations raised on them, before we can suppose that any of the subtle Particles of the Cantharides could have penetrated so far as to injure the urinary Ducts; or, which is more probable, their Effluvia must have entered the Mouth in Respiration, and, being swallowed with the Saliva, have exerted their Virtues within the Body. Hence *Rammazini*, in his *Opera Medica & Physiologica*, advises Apothecaries, when pounding these Insects, to take care, that the flying Dust does not enter their Mouths; and previously, or at the very Time they are at work, to guard themselves by liberal Draughts of an Emulsion of Melon-seeds, of Whey, or of Milk, in order to prevent or mitigate the Heat of Urine commonly produced on such Occasions. *Caldera*, in his *Illustrationes & Observationes præcticae*, T. 2. tells us, that a certain Druggist of Carmona, happening, when at Seville, to carry some Cantharides under the Breast of his Coat, was forthwith seized with a violent Heat of Urine, and a Pissing of Blood. More Instances of this kind may be seen in *Santanelius's Lucubrations Physico-mechanicæ*. But the judicious Dr. *Freind* thinks Relations of this kind entirely chimerical, and tells us, that, in the sixteenth Century, so foolish and ill-grounded a Dread of Cantharides prevailed, that *Adolphus Occo*, who flourished about the Year 1560. would not consent to their being carried in the Pocket, upon hearing that a certain Person, who had done so, discharged Blood instead of Urine. From what has been said it appears, that Cantharides are possessed of a caustic Quality, which corrodes the Fibres, colliquates and putrefies the Humours, and is of so highly volatile a Nature, that a very small Quantity of it exerts its Influence. Now, as every Substance, which entering the Body in a small Quantity, suddenly and vehemently attacks both the internal and external nervous Parts, and, by its active and penetrating Principle, soon produces great and dangerous Changes, is generally called a Poison; so 'tis obvious, that, with respect to our Constitutions, Cantharides justly come under that Denomination. *Hoffman de Vesicatoriorum præstanti in Medicina Usu*, and *Caspar Hoffman*, in his Work *De Medicamentis officinalibus*, calls them "a violent septic Poison, highly destructive of the urinary Parts." The learned *Stenzelius*, in his *Toxicologia*, *Lib. 1.* informs us, "That Men of profligate and wicked Characters prepare what he calls *Venenum Temporaneum*, or a temporary Poison, of the Powder of Cantharides, which they mix with Honey, and form into Troches or Electuaries, by the frequent Exhibition of which various Disorders are brought on, and, at last, the Death of the miserable Patient is procured. Others," says the same Author, "produce the like terrible and fatal Effects by Pills, which, as *Benedictus Sinibaldus* informs us, from *Fallopian*, they prepare of pounded Cantharides, in Conjunction with Pepper, Cinnamon, and Cloves, as if the acrid Poison of Cantharides were not sufficient of itself. These Pills they exhibit several times. Of the like Nature I take the *Morsuli Pappenheimiani* to be, which have Cantharides for an Ingredient; and by which, Convulsions of the Penis, Discharges of bloody Urine, and other Disorders, are brought on, as *Paulus Ammannus* informs us in his *Ironicon*." Cantharides are class'd among those Poisons, to which Vomits, diluting aqueous Liquors, emollient oleous Substances, and Acids resisting Putrefaction, are opposed. *Borrhaav. Instit. Med.* 1144. "A certain Man had Cantharides exhibited to him, and was forthwith seized with the following Symptoms: All the Parts from his Mouth to his Bladder, to him, seem'd to be corroded; his Breath smell'd like the Rosin of the Cedar, or some such Substance; the Præcordia on the Right Side were inflamed; he discharged his Urine with Difficulty, and a Mixture of Blood was now-and-then evacuated along with it. By Stool he evacuated just such Dregs as Dysenteric Patients do; he loath'd his Food, became subject to fainting Fits, was seiz'd with so violent a Vertigo, that he dropp'd down, and at last lost the Use of his Reason in some measure. This Patient had Oil of sweet Almonds, newly express'd, and mix'd with Butter, exhibited, with an Intention to vomit him: Soon after Cremor of Pissan, and a Decoction of Mallow, Linseed, Fenugreek, and Marshmallow-roots, were injected by way of Clyster; and an Emulsion of the Four cold Seeds was exhibited in Milk. Soon after, upon the Exhibition of

“ Water and Honey, and fat Broth, prepared with Fowls, the Patient became better.” *Forestus, Obs. Med. L. 30. Obs. 6.* *Wedelius*, in his Book *de Medicamentorum Compositione extemporanea*, informs us, “ That he knew a certain Man, who, in order to excite a Stimulus to Venery, used an Infusion of Cantharides in Chocolate; in consequence of which he was afflicted with an intolerable Dysury, and a violent Heat and Pain of his Penis; but by liberal Draughts of new Milk his Disorder, with all its Symptoms, were removed.” *Jo. Lindestolpe de Venenis* informs us, “ That nothing is more effectual against Cantharides, whether drunk in any Vehicle, or convey’d into the Body, in consequence of the Application of a Vesicatory, and by this means lacerating the tender Neck of the Bladder, and consequently a Heat of Urine, and the Priapism produced by it, than saline Acids of an opposite Nature, drunk in a proper Quantity, and also applied externally. The best of these, for external Use, is warm Wine-vinegar; and, in the Case of a Priapism, the Lees of generous Wine. But, for internal Use, simple Oxymel is the most proper, as I myself, says he, have found from Experience.” By inadvertently eating a Paste, made up with Cantharides, for a Vesicatory, violent Pains were excited, an Excoriation of the Tongue and Fauces induced, and the Patient was hereby reduced to the most imminent Danger. By immediately exhibiting a large Quantity of Milk, and proper refrigerating Waters, the Patient was forthwith vomited. Violent Pains were, in the mean time, excited about the Region of the Bladder, in consequence of the Cantharides corroding that Organ. For removing these Pains refrigerating Clysters seem’d most proper: At last a proper Quantity of the Theriaca, exhibited with Sorrel-water, procured Sleep. After which the racking Pains continued the whole Night, together with a plentiful Discharge of Blood instead of Urine; but by proper Anodynes, and the Use of refrigerating and cordial Syrups and Emulsions, the Patient was freed from the Tyranny of his Disorder, and restored to perfect Health. *Bartholin. Historiæ Anatomicae Gent. 3. Hist. 16.* A certain Person, upon taking eight or nine Cantharides in a Cheese-cake, was afflicted with a Heat of Urine, which was mixed with Blood, with violent Pains in his Back, and a burning Heat in his Stomach; but was cured by proper Doses of the Powder of the Seeds of Bishops-weed, and Sal Prunelle, together with Emulsions, and Frogs-spawn Water. *Philosop. Trans. abridged, Vol. 5.* A certain Lady of Distinction, by the Application of a Vesicatory of Cantharides to the Nape of her Neck, was seized with an Inflammation of her Bladder, a Heat of Urine, and at last with a Discharge of Blood instead of Urine; all which Symptoms were removed, and the Patient restored, by Emulsions of the Seeds of Fennel, Mallows, and sweet Almonds. *Ephemerides Germanicæ curiosæ, Decad. 1. a. 2. o. 105.* A certain Physician, intending to make Trial of the Effects of an Aphrodisiacal Eleluary, which contained Cantharides, by taking about the Bulk of a Chestnut of it, was first seized with a Heat in his Penis, and afterwards with a continual Inclination to make Water, but with the most violent and scarce tolerable Pain. His Symptoms were, however, removed by a Potion made up with Turpentine, Diacodium, and Syrup of Marshmallows. *Ephemerides Germanicæ curiosæ, Decad. 2. a. 10. Append.* These Instances teach us what Measures are most proper to be taken in Cases of a like Nature. The Method by which Cantharides act upon the human Body, or whence it is they derive their caustic Quality, are Points much controverted by the Learned. *Berrikinus* obtained from one Ounce of Cantharides, put in a Glass Retort, increasing the Fire gradually, a Dram and somewhat more of a thick, yellowish, fetid Oil, with a very small Portion of a yellow Water, and of volatile urinous Salt about half a Dram. After he had observed, that this Oil and Salt, when rubbed on a Man’s Hand, produced no Appearance of Blisters, he had recourse to the Microscope; and because, by its Assistance, he perceived that the Body and Legs of this Insect were rough with a thousand Spiculae, he ascribes their caustic Quality to the Entrance of these Spiculae into the Cuticula or Scarl-skin, just as the Leaves of Nettles, which are armed with the like Spiculae, produce a Sensation of Burning, when applied to the Hands. Hence he concludes, that the caustic Quality of Cantharides is not lodged in the Wings and Heads, but in their Legs, and the other Parts of their Bodies; and that, when the Bodies of these Insects are powdered very small before they are applied to the Cuticula, ’tis probable they operate more slowly for that very Reason, since their Spiculae are, in a great measure, broken and destroy’d by the strong Trituration. He imagines, that when Cantharides are either externally apply’d, or internally exhibited, these Spiculae remaining in the Serum, and being conveyed to the urinary Ducts, by their Pungency produce those Effects which are observed to succeed the Use of these Insects. He thinks it not improbable, however, that the Force and Energy of these Spiculae is augmented and increased by the volatile Salt contain’d in the Insect. *Acta Medica & Philosophica Hafniensia, Vol. 4. Obs. 80. and Vol. 5. Obs. 89.* But it may be justly doubted, whether these Spiculae do in reality account for the caustic Qua-

lity of Cantharides, since a great many other Insects, which, by the Assistance of the Microscope, are observed to be covered with like Spiculae, are not, at the same time, found to be Escharotics. Besides, some of the more mucilaginous Vegetables, such as Squills, Garlick, and Onions, act as Vesicatories, when applied to the Cuticula. *Ephemerides Germanicæ curiosæ, Decad. 1. a. 10.* According to *Hoffman*, in his *Medicina Rationalis*, the Virtues of Cantharides are to be ascribed to nothing but a certain subtile caustic Salt, by which they act upon our Bodies. *Lewenhoeck*, as he himself informs us, *Epist. 70.* observed several saline Concretions in these Insects, when triturated, infused in Water, and dried in the Air. He also observed like saline Concretions in the Oil and Spirit of Cantharides, chymically extracted, diluted with an Addition of Water, and evaporated; as also in the Caput Mortuum, when lixiviated, *Dr. Cockburn* distilled eight Ounces of Cantharides from a Retort placed in a gentle Sand-heat; and, from that Quantity, obtained not only a volatile Salt, but also a Spirit and an Oil, two Ounces and five Drams being only left for a Caput Mortuum. He then separated the Oil by the Assistance of Brick-dust, and by that means obtained a Spirit which did not produce an Effervescence with Salt of Wormwood, Spirit of Hartshorn, and Sal Ammoniac; but, when added to Spirit of Vitriol, a violent Effervescence was produced, and a still more violent one with Spirit of Nitre; but the Effervescence was observed to be more gentle, and shorter, when Spirits of Hartshorn and Sal Ammoniac were added to these Acids. Hence ’tis obvious, that the Spirit of Cantharides is a stronger Alkali than the last-mentioned Spirits. *Philosophical Transactions abridged, Vol. 3.* According to *Vigani*, in his *Medulla Chymicæ*, Cantharides are observed to contain a larger Quantity of volatile Salt than any other Animal whatever. The Steam of that volatile urinous Spirit obtained from Cantharides by Distillation, happening to fly into the Nose of a certain Person, who suddenly opened a Phial in which it was kept, in a few Hours after excited Pains in his Back, brought on a Discharge of bloody Urine, and affected his Head. This Spirit, when added to Blood as yet warm, rendered it so fluid, that no Fibres were any longer to be observed in it. *Ephemerides Germanicæ curiosæ, Decad. 2. a. 1.* If it should be asked why, or in what manner, Cantharides, whether internally exhibited, or externally applied, attack the urinary Bladder in a particular Manner, exulcerate that Organ, and bring on a Discharge of Blood instead of Urine; *Kircher*, in his *Mundus Subterraneus*, informs us, that it is the virulent, subtile, and spirituous Exhalation of the hot Salts contained in the Cantharides, and excited by Heat, which, by a wonderful kind of Magnetism, flows to the sanguinous Humour of the Bladder, as a Body analogous, and of a like Nature with itself. But, because this Exhalation is of greater Efficacy than the sanguinous Humour of the Bladder, the former so taints and contaminates the latter, that a Corrosion ensues, by which means a Discharge of Blood must necessarily be produced. *Cæsalpinus*, in his *Speculum artis Medicæ Hippocraticum, Lib. 3. Cap. 11.* informs us, “ That Cantharides are conveyed to the Kidneys, because, like Nitre, they are easily dissolved by the Urine; and because, smelling like the Robin of the Cedar, they are attracted by the Kidneys.” But *Lindestolpe*, in his *Treatise De Venenis*, seems to put this Matter in a clearer Light, when he tells us, that he does not think the Bladder affected, because the caustic alkaline Salt of the Cantharides is more directly applied to it than to the other internal Parts, but because the Cantharides being dissolved in Water, following, like other Salts, the more aqueous Parts of the Blood, and at last being conveyed to the Bladder, easily excite a Pain in that highly nervous, and exquisitely sensible, Part. Besides, the Intestines, in consequence of that Mucus, or pituitous Matter, with which they are covered, easily elude the Action and Force of acrid Substances of this kind; but they would, no doubt, be corroded by them, if they were exhibited in large Doses. *Stentzelius* thinks, that besides the Laxity of the Intestines, and the large Quantity of Phlegm lodged in them, we are also to consider the Nature of the Serum which lubricates the Stomach and Intestines; for, according to him, this Serum partakes of the Nature of an Acid, by which means the excessive Acrimony of the alkaline Salt, contained in the Cantharides, is not only diluted, but also obtunded and blunted, by a Salt of an opposite Nature, to such a Degree, that they are deprived of a Power of doing any Injury. Before we come to speak of the several Uses to which Cantharides are applied in Medicine, it will not be improper to consider what Effects they produce when infused or injected into the Blood of live Animals, and when mixed with human Blood just taken from the Veins. *Baglivi* made the following Experiments, with a View to discover the Effects of Cantharides. At *Rome*, says he, in the Month of *May*, I opened the Right Jugular of a Mastiff Dog fixed to a Table, and, by the Assistance of a Syringe, injected two Ounces of the Tincture of Cantharides; and this Tincture consisted of two Drams of Cantharides reduc’d to a Powder, and six Ounces of the Water of *Cardus Benedictus* digested for three Days on hot Ashes. After the first Injection

jection the Dog vomited an aqueous and viscid Substance, and discharg'd a viscid Saliva from his Mouth, till at last two Ounces being injected, the Orifice was stitch'd up, and calcin'd Vitriol sprinkled on it. No sooner was this Operation perform'd, than the Dog dropt to the Ground, as if he had been dead. He would eat no more during the remaining Part of his Life, but had a violent Drought, for which Reason a Servant, prompted by a Principle of Compassion, without my Knowledge, gave him about twelve Pints of Water, by drinking which he discharg'd a large Quantity of yellow Urine. In the mean time he howl'd, and his insatiable Thirst continu'd, but we gave him no more Water. Before his Death he was seiz'd with Convulsions, and, on the fourth Night after the Injection was made, died howling in the most lamentable manner. Upon opening his Body, we found that Part of his Neck where the Injection had been made, entirely sphacelated and fetid. In the Right Ventricle of the Heart, a large Quantity of very black Blood, little or not at all coagulated, fluctuated, and on the Surface of this Blood, some small Drops, as it were of Oil, floated. In the same Ventricle we also found a small Polypus, surrounded with some grumous Blood. In the Left Ventricle of the Heart were found two long slender Polypuses, and the Blood contain'd in it was highly black and colligated. The Lungs, and other Viscera, were entirely sound, but that mucous Substance with which the urinary Bladder is naturally livid, was entirely destroy'd, perhaps by the Acrimony of the Cantharides. The Bile in the Gall-bladder was become somewhat blackish. The Blood which flow'd from the open'd Veins or Viscera, was highly black, but not at all coagulated, and had small Drops, as it were, of Oil floating on its Surface. At Rome in the Month of July, I injected two Ounces of the Tincture of Cantharides into the right Jugular of a young middle-sized Dog fixed to a Table. After the Wound was stitch'd up and dressed, as in the former Case, the Dog forthwith vomited, and dropt down, as it were, half dead. Two Hours after, he hung out his Tongue with the greatest Signs of an insatiable Thirst. He would eat nothing, and, notwithstanding his Thirst, I would allow him no Water. Six Hours after, he died howling in the most terrible manner. Upon opening his Carcase, all his Viscera were found to be sound. His Blood, however, was highly black and colligated, and had, as in the former Case, as it were, small Drops of Oil floating on its Surface. This Dog was young, of a small Size, and had drunk no Water; 'tis therefore no Wonder, if the Humours being suddenly dissolv'd and colligated by the caustic Salt of the Cantharides, he should die in six Hours after the Experiment was made. In both Dogs I observ'd, that after injecting the Tincture into the Jugular, no Part was so soon affected as the Head, which immediately nodded, and hung down; neither could the Animal stand with a strait Neck. The former of these Dogs immediately hung down his Head, and could scarce raise it up; but upon drinking twelve Pounds of Water, he immediately started on his Feet, mov'd his Head freely, kept his Neck strait, and became more brisk and cheerful than before. But he had scarce sooner discharg'd the Water by Urine than he dropt down to the Ground, raised his Head no more, but died on the fourth Night half stupid, and nodding his Head. Hence it may be inferr'd, that Cantharides are principally prejudicial to the Head, and consequently highly improper in acute and inflammatory Disorders of that Part. But this Assertion must rather be confirm'd by Experience, than establish'd by Conjecture and Hypothesis. At Rome, in the Month of April, I took eight Ounces of Blood newly taken from a certain Patient; this Blood I divided into two Vessels; immediately after its Extraction I mixed a Scruple of powder'd Cantharides with the Blood contain'd in one of the Vessels, and left that in the other without any Mixture at all. The Blood mixed with the Cantharides coagulated before that left without any Mixture; but afterwards assum'd a livid blackish Colour, and a slender blackish Pellicle appear'd on its Surface. At last over the whole Surface of the Blood appear'd a large Number of Vesicles, which, when broken, discharg'd a blackish Serum, and soon after the Whole of the Blood was dissolv'd into a black and somewhat livid Serum. The Blood in the other Vessel, and which remain'd without the Addition of any thing, did not undergo the like Changes. In the same Month, after taking Blood from a certain feverish Patient, I separated the Serum from the Blood, and mix'd with the former a Scruple of the Powder of Cantharides. A little after the Mixture I observ'd, that the Powder was precipitated to the Bottom of the Vessel without communicating any Colour to the Serum, which only became more liquid, thin, and scarce afterwards to be coagulated. Thus Bagliyi.

What Effects Cantharides are capable of producing on the Humours of an animal Body, we have already seen; but, according to *Pliny*, in the fourth Chapter of his twenty-ninth Book, Authors are not agreed in what particular Part of the Insect the Poison is lodg'd. Some think it is

contain'd in the Head and Legs, but this is deny'd by others. But it is agreed upon, that their Wings contribute to the Production of their Effects, in whatever Part the Poison is lodg'd. These Insects themselves are form'd of a small Worm, hatch'd for the most part in a spongy Substance in the Trunk of the Dog-rose-tree, but more plentifully in that of the Ash. Those produc'd in the white Rose-tree are less efficacious. The most efficacious are those which are very plump, and variegated with pale Streaks, running in transverse Directions along their Wings. Those which are small, flat and hairy, are less active; and those all of one Colour, and extenuated, are, of all others, the most mild. These Insects are preserv'd for some time in an unglazed earthen Vessel, after which they are tied up in a Cloth with fresh Rose-leaves, suspended over boiling Vinegar and Salt till they are moisten'd thro' the Cloth, after which they are again to be put in the Vessel. They are of a caustic Quality, and serve to induce Cicatrices. They are said to be effectual against the Leprosy and Ring-worm, and to provoke the Menstrues and Urine; for which Reason *Hippocrates* exhibited them to dropsical Patients. These are the Uses to which, according to *Pliny*, the Antients applied Cantharides. *Dioscorides*, Lib. 2. Cap. 54. and *Paulus Aegineta*, Lib. 7. Cap. 3. inform us, that those Cantharides which are found among the Corn, and have their Wings mark'd with pale or yellow Streaks, were in their Days esteem'd the most proper for medicinal Purposes. *Hippocrates*, in his Treatise de *Pictu in Acutis*, for a dropsical Patient prescrib'd the Bodies of three Cantharides triturated, without the Heads, Feet, and Wings, to be taken in three Glasses of Water. For answering the same Intention he also order'd five of the same Insects without the Heads and Feet, to be put into the Pudenda of Women mixed up with Frankincense, Myrrh, Honey, Oil of Roses, or Egyptian Oil, de *Morbis Mulierum*, Lib. 1. A little after, in the same Work, he recommends five Cantharides without the Heads and Feet, to be taken in mild sweet Wine, for expelling the Secundines; but, for expelling the Fœtus, he orders ten Grains of *Ethiopic* Cumin and Castor, together with a little Cantharides, to be taken in Wine. But why, in the same Passage, *Hippocrates* should recommend triturated Cantharides made up with Wine to be applied to the Pudenda of Women, as a Method of trying their Fecundity, is what we cannot well comprehend. In his Book de *internis Affectionibus*, he, in the Jaundice, recommends four Cantharides without the Heads and Feet, to be triturated, and exhibited twice or thrice a Day, in a Quarter of a Pint of White-wine, with the Addition of a little Honey. For promoting the menstrual Discharges, he exhibited four Cantharides without the Heads, Feet and Wings, in some proper Liquor; Lib. de *Natura Muliebri*. But *Galen*, if we may believe *Matthiolus ad Dioscor.* used to mix all the Parts of Cantharides with his Medicines. These Insects, according to the learned Doctor *Freind*, are often recommended by *Hippocrates* for internal Use, but no-where with an Intention to excite Blisters, tho' at the same time he seems not to have been entirely ignorant of their Effects when applied to the Skin; since in the Book de *Supersatatione*, of which he is generally supposed to be the Author, they are order'd to be mixed with other irritating Substances, and form'd into a Pestlary, with an Intention to purge the Uterus.

Arctæus was the first who order'd these Insects to be rubb'd on the Skin of the Head in order to excite Vesicles. This Author recommends Cantharides in the Cure of an Epilepsy, and orders the Patient to use Milk for three Days before their Exhibition, to prevent the Injury the Bladder otherwise might sustain. The same Method of curing this Disease; and Palsies, was, according to *Arctæus*, follow'd by *Archigenes*, whom we may reasonably suppose to have been of the same Sect with *Arctæus*. *Galen* informs us, that Plaisters made of these Flies may very properly be used for the Cure of Baldness, the Itch and Ring-worm; but according to *Le Clerc*, he either disregarded this Medicine in the Cure of most other Diseases, or, as appears from his own Writings, rarely used it, as being attended with dangerous Consequences. As the *Greeks* who came after *Galen* advanced very little new upon any Subject, so they have been no less indolent with respect to this Particular. The *Arabians* also are in vain consulted in this Affair, who, tho' strongly addic'd to composing new Forms of Medicines, yet in this Particular, as in most others, follow'd the Footsteps of the *Greeks*. Among the *Latins*, Cantharides seem to have been in very little Repute; and *Celsus* himself who deals very much in Sinapisms, makes no mention of them so far as we know, except when, in Imitation of *Mico*, he recommends them for deterging and removing Pimples. *Pliny* informs us, that anointing the Parts affected with Cantharides is good against the Leprosy, the Ring-worm, and for extracting Darts. And *Scribonius Largus* is the only Author who extols them, when mixed with proper Cerates, for removing Scars. These are almost all the Cases in which the Antients apply'd Cantharides to the Skin, which was very rarely, and only

only when cold Humours were to be remov'd, and when the Disorder was become inveterate. Long after the Restoration of Learning, Cantharides were also as scantily used: For *Fernelius* only prescrib'd them in Blindness, and in Dropsies; but tells us at the same time, that their Use requires the highest Caution and Prudence. *Hellerius*, a Contemporary of *Fernelius*, an Author of a fine Taste, and a Man well acquainted with the Writings of the Antients, orders Cantharides to be mix'd in stimulating Topics for removing a Lethargy; tho' *Duretus*, who wrote the *Adversaria* to the Works of *Hellerius*, dissuades the Use of stimulating Topics in this Disorder, because it is accompanied with a Fever, in which Case hot Substances are highly improper. It is however, a memorable Cure which *Paré* and *Hellerius* perform'd by Cantharides. They advis'd a certain Lady of Distinction, whose Face was all over deform'd with burning Pimples, as if she had labour'd under an Elephantiasis, to apply a Vesicatory of Cantharides all over her Face, by which means she was afflicted with such racking Pains, and seized with a Fever so violent, that no Hopes of her Life seem'd to be left: However, when by the joint Care and Skill of these two she was restor'd to Health, the Deformity of her Face disappear'd, and never created her any Trouble for the future. The same *Hellerius*, when speaking of Caustics, affirms, that sciatic and arthritic Pains, Hemicranias, and Head-achs, are often reliev'd in consequence of the Blisters or Vesicles rais'd by Cantharides. He also tells us, that the Viscera are purg'd, the Body entirely freed of recrementitious Sordes, and a large Number of old and obstinate Disorders cur'd, by means of Cantharides. We must not forget to mention, that the Whole of this Encomium on Cantharides is wanting in the Chirurgical Institutions of *Hellerius*, first published with the Works of *Tagaultius*, in the Year 1540. which Edition *Gesner* and *Uffenbachus* have follow'd. From this Circumstance we may reasonably suspect, that after this Time Cantharides began to be more frequently used than before. *Freind*.

From what has been said we learn, first,

That the internal Use of Cantharides is more antient than the external Applications of them, at least that they were more frequently prescrib'd in the former, than in the latter Case.

Secondly, That these Insects were used in Cases where the Body was thought to require a great Stimulus; or where the Intention was to purge it. What we have above quoted from Dr. *Freind* sufficiently shews, that almost till our own Times the external Use of Cantharides was a Piece of Practice which had not only its Abettors, but also its Enemies, as indeed all efficacious Medicines generally have, provided they are used by Men of Note. In our own Times these Insects are used as the Basis or principal Ingredient in Vesicatories, which are commonly prepar'd by mixing Powder of Cantharides with Leaven, or with a proper Plaster. But the Quantity of Cantharides ought to be specified by the Physician, according as the Case requires an Application more or less acrid. By stimulating the Vessels, and resolving the Juices, external Applications of Cantharides certainly produce very happy Effects in all Diseases arising from a spontaneous Glutinosity; in the Rickets, for Instance, they are of singular Service by stimulating the languid Vessels, and resolving the mucous Concretions. *Boerhaave Mater. Med. and Aphor. 1489.*

As for the Effects they produce on the Skin, they are so obvious, that medicinal Writers seem to have adverted to them alone, and accounted for the good Effects of Vesicatories, from the Evacuation of Serum occasion'd by them. This Evacuation they will have to be produc'd by the Stimulus of the Vesicatory, and the Pusson of the Humours; so that when the Skin is, as it were, prick'd with small Needles, the Serum is pour'd out. It must indeed be confest, that, in consequence of the Force of this Stimulus, the Humours flow more plentifully to the Part than at other Times: Yet we are not for this Reason to believe, as they do, that, whilst the rest of the Blood is retain'd in the Vessels, the Serum is in a particular manner imbibed or attracted by the Particles of the Cantharides; for, when the common Coat of the Vessels is a little corroded, the Serum is discharg'd merely in consequence of its Thinness, whereas the Globules, which give a red Colour to the Blood, being larger than the Pores thro' which the Serum passes, cannot be discharg'd. This is obvious in those Blisters rais'd by the Fire, by which the Cuticula, which covers the Mouths of the Vessels, being torn in the same manner as in case of Vesicatories, a Passage is made for the Serum.

Since then Vesicatories not only excite Pain, but eliminate and discharge the Serum, they must be of singular Service in the Cure of Diseases, and the Evacuation of the Serum may be look'd upon as a kind of Prognostic; for, unless it is discharg'd, we rightly conjecture, that the Case will not terminate so happily, as otherwise it might be expected to do. But the Virtues of Cantharides seem not to be confin'd within these Bounds; for their Effects are so surprising and extensive, that we cannot possibly account for them, unless we could comprehend the particular Manner in which they affect, not

only the Skin, but also the Mass of Blood; for, if they only prov'd beneficial by drawing away the Serum, the same Quantity of Serum discharg'd along with the Urine would produce equally happy Effects. But tho' in almost all Diseases as much Serum may be discharg'd from the urinary Passages, as could be taken off by the Application of a Vesicatory; yet 'tis obvious from Experience, that the former Discharge in no Disease produces so good Effects as the latter. It sufficiently appears how great the Virtues of Cantharides, taken internally, are, in evacuating Humours, removing Obstructions, and promoting a brisk Circulation of the Blood. For this Reason they were used by the Antients with an Intention to provoke the Menfes, to cure the Dropsy, to expel the Fœtus, to dislodge Worms, to subdue the Poison of mad Dogs, and to open the cutaneous Ducts in inveterate Ring-worms. It is also probable, that, when Cantharides are applied to the Skin, they penetrate farther, and put the Humours into the like Commotions; otherwise how could their external Application prove so beneficial in Pleurifies, Peripneumonies, Defluxions, and Convulsions? How could they cure inveterate sciatic Pains, or open Obstructions? How could they dispose the Humours for Perspiration, make the Sweat flow more easily, and produce a speedy Eruption of all Kinds of Pustules on the Skin?

Those who either neglect or overlook this internal Energy of Vesicatories, when accounting for the racking Pains and Exulceration of the urinary Ducts produc'd by them, are oblig'd to confess, that the Particles of the Cantharides have penetrated into the Mass of Blood; and that their highly acrid Salts, uniting with those of the Urine, act these painful Tragedies. Thus the Man who obstinately adheres to an Opinion implicitly taken for granted, involves himself in inextricable Difficulties, and is oblig'd to run into the most glaring and palpable Inconsistencies.

If in Parts so far remote from the Skin, as the Bladder and urinary Ducts, they produce so considerable Effects, what Reason have we to doubt of their exerting their Energy in other Parts? What should hinder them from inducing a certain Change on the Humours circulating thro' all the Vessels? 'Tis certain the Disadvantages sometimes attending the Application of Vesicatories cannot be accounted for, but by supposing the Cantharides to act upon the Blood in the manner now specified. Upon this Principle we can easily understand, why in hectic Cases, especially accompanied with colliquative Sweats, as also in bilious Constitutions, and those constitutionally inclin'd to feverish Heats, Cantharides are sometimes prejudicial, and, if we may believe some Authors, highly dangerous in a Plethora, unless a Vein be previously open'd; for since they greatly attenuate the Mass of Blood, and accelerate its Circulation, they consequently produce Fevers, Inflammations, and Deliriums; or, as happens in hectic Cases, too profusely dissipate the Stores by Nature destin'd for the Support of Life; in slow Fevers also, where the Pulse is weak and languid, if Vesicatories are successfully apply'd, we immediately perceive it to become stronger, which Effect we can by no means suppose the Detraction of a very small Quantity of Serum capable of producing.

Bellini, who maintains that the whole Efficacy of Vesicatories consists in their stimulating Quality, asserts, that by this very means the Pulse is rais'd, and render'd stronger. But I would ask, Whether other stimulating Applications produce the same Effects? Whether, for Instance, Caustics, Pontanels, Setons, or even Vesicatories, which have not Cantharides for an Ingredient, are capable, by their Stimulus, not only of raising the Pulse for a time, but also of restoring it so, as that it shall remain in its natural State? Purgatives, which scarce enter the Blood-vessels, prove a Stimulus to the Intestines, but the Pulse is not by that means render'd in the least stronger than it was before; they indeed somewhat accelerate the Circulation of the Blood at the Mouths of the Glands, but do not appear so to affect the common Mass of Humours, as to impart any Vigour to the Pulse.

Boiling Water, in like manner, and live Coals, excite both an Itching and Blisters on the Skin, but yet in such a manner, as to convey no new Degree of Motion to the Blood. Since, then, so speedy and unexpected Relief is in many Diseases, especially those of the Head, afforded by Vesicatories, these seem to produce their Effects, not so much by Revolution, Irritation, or Evacuation, as by some other Quality or Virtue. Now, if we carefully advert to this Virtue or Energy exerted internally, we shall understand the whole Nature of Vesicatories, and be able to judge in what manner they may be most happily accommodated to the Cure of Diseases. If we were but careful in this Particular, we might at least, receive some Assistance in executing a Design hitherto neglected by the Physicians, which is the laying down accurate, clear, and infallible Rules, with respect to the Use of Vesicatories in chronical Disorders.

But to return to our Subject: In acute Fevers, the safest and most speedy Relief is afforded by Vesicatories, which, tho' they powerfully derive the febrile Matter from the Brain,

yet they often assist and promote the other Discharges, especially that of the Sweat and Urine, at least they never suppress them in any Case or Degree whatever. Nor are we to be too scrupulous about accommodating Vesicatories to the Constitution of the Patient; for whatever his Habit of Body is, whether hot in consequence of a Redundance of Bile, or a preternatural Attenuation of the Blood, or whatever his State is, if the Fever rages beyond measure, the slight Inconveniences of a Vesicatory are rather to be endur'd, than the Life of the Patient to be risk'd; for many Cases are of so dangerous a Nature, as that the only Hopes of Relief are placed in Vesicatories. Instances of this kind occur in Gouty Patients, when the Matter which used to flow to the Extremities of the Body, is convey'd to the Head, and produces a Fever.

The good Effects of Vesicatories are confirm'd by daily Experience in the Small-pox, Measles, Scarlet and Erysipelatous Fevers, in which Disorders, tho' the Blood is preternaturally hot, and its Motion too much accelerated, we nevertheless use Vesicatories with Confidence and Success. We are not therefore to listen to those who with *Baglivi*, in his *Treatise de Vesicantibus*, reject the Use of Vesicatories in nervous Disorders, in burning and continued Fevers, even tho' attended with Drowsiness, and a Delirium.

It may justly be asserted, that more have been cur'd of Fevers by the Use of Vesicatories, than by any other Method of Cure; and I myself, says *Freind*, can attest, that by this Method alone more have been sav'd, than by all other Means in Conjunction. *Sydenham* judiciously used Vesicatories for the Cure of the Epidemical Fevers, which rag'd in the Years 1674, 1675, 1679, and 1685. But why in other Fevers he did not use the same Method, I am at a Loss to understand, since the other Years he mentions brought in no Fevers, in which Vesicatories would not have been equally beneficial.

Dr. Freind's Surprise at Sydenham's Neglect of Blisters, in the Fevers here meant, would have ceased, if he had reflected, that Sydenham's Experience had taught him a more easy, and not less effectual Method of curing them, without frequent Blisters.

The Method of Evacuation by Vesicatories has this to recommend it above all others, that it may be safely used at all Times: The Effects of other Evacuations are, in violent Disorders, so precarious and uncertain, that it is dangerous to attempt them, as we often experience in Venesection. But what Patient is not more afraid of a Vesicatory than of Venesection, tho' attended with more Danger? This Circumstance, however, is owing to the Cowardice of the Patient, who, prompted by Nature, flies from Pain, and shuns, if possible, a Medicine which can scarce produce any happy Effects without exciting some Degree of it. But it would be a culpable Compassion in the Physician, in this Case, to listen to the Suggestions of the Patient, and destroy his Life, for fear of exciting a small, but salutary Pain in his Body.

Many Fevers are cured by Evacuations alone, without the Use of any other Means; but scarce any of the more violent Kind can be removed, without those Evacuations procured by Vesicatories. *Freind de Vesicantibus.*

We now come to consider their internal Use; and in what Cases the Antients exhibited them in this way, we have in some measure seen, from what has been already said. But whoever will be at the Pains to consult the Passages of *Hippocrates* before quoted, will find, that he guarded against the bad Effects of Cantharides, from their Acrimony, by prescribing them with a sufficient Quantity of Water or Wine. *Vallisneri Comment. in Hippocr. de Viâ in Acutis.* In what Cases the Moderns recommend the internal Use of Cantharides, may be seen in many different Authors. *Baglivi* informs us, "That these Insects, taken internally, either against a desperate Ischury, or with a View to excite Venery, or to remove a virulent Gonorrhœa, produce the worst and most dismal Symptoms; for, first, the Bladder and Urethra are exulcerated, then the Liver is gradually inflamed, the Intestines corroded, and violent Pains are excited in the Hypogastrium; and these Pains are succeeded by Loss of Reason, and Death, unless the Cantharides be forthwith evacuated, or the Violence of their Action broken and impaired." It is highly proper for those who intend to follow the Practice of Medicine, to know in what Cases, upon the Authority of skillful Physicians, who have gone before them, they may safely, and without Diffidence, prescribe Cantharides as an internal Medicine. *Capivaccius*, then, a celebrated Physician in the sixteenth Century, in his *Medicina practica*, affirms, that whole Cantharides may be safely and successfully exhibited internally in Dropsies, and all Suppressions of Urine; and asserts, that, by the Use of Cantharides, he has seen Patients of this Kind restored, after their Lives were despaired of. But he lays down some Cautions with respect to the Use of this Medicine: First, then,

When the Urine is so totally and strongly suppress'd, that the Disorder will yield to no other Medicines, the Physician is, in this Case, to have recourse to Cantharides, as the most powerful Remedy, since the Life of the Patient is immediately threaten'd.

VOL. II.

Secondly, The Physician is to have recourse to Cantharides when the Urine is suppress'd, not thro' any Defect in the Bladder, for in that Case the Patient may be relieved by a Catheter; but thro' a Fault of the Kidneys, as generally happens in a Dropsy.

Thirdly, He advises their Exhibition in small Quantities, and in Conjunction with other Medicines; especially such as have a Tendency to defend the Bladder from the Injury they may do it. Thus, for Instance,

Take one entire *Spanish Fly*, together with a Scruple of the Powder of Rue or Lavender, or some other Powder of a like Nature; giving the Patient four or six Ounces of some pinguious Liquor, such as fat Broth made of Fowls, to be drank after it.

Langius, in his *Epistolarum Medicinalium Miscellanea*, affirms, that he had found, from his own Experience, that the Powder of torrefied Cantharides, with an Addition of Cherry-tree Gum, was more salutary, and less noxious, in diuretic Electuaries, when dissolved in an Apozem suited to the Nature of the Distemper. *Thomas Bartholine*, for virulent Gonorrhœas, Suppression of Urine, and the Stone, has taught us the following Method of preparing them safely, by way of Infusion:

Let one Scruple of Cantharides, reduced to Powder, be infused in three or four Ounces of *Rhenish Wine*, or Spirit of Wine: Let them stand in Infusion for some Days; then let the Liquor be filtrated thro' coarse Paper, so that none of the Substance of the Cantharides may be mixed with it. Mix one Spoonful of the strain'd Liquor with seven Spoonfuls either of Wine or Ale; and of this Mixture let the Patient take one Spoonful the first Day, two the second, which let him continue the subsequent Days.

Many Authors have attested the happy Effects produced by this Potion. According to *Ettmuller*, the happy Effects it produces are owing to this, that the Force of the volatile caustic Salt is corrected by the Acid of the Wine, as it may be by Vinegar, by which means it is transform'd into a temperate and less corrosive Salt. Thus, at *Leyden*, a certain Physician successfully cured a virulent Gonorrhœa only by the Use of Cantharides, macerated in *Rhenish Wine*; but he corrected the Infusion with some mild Liquor before he exhibited it, as we are told in *Bartholine's Epistolar. Medicinal. Centuriæ, Cent. 4.* *Dr. Martin Lister*, in his *Exercitationes Medicinales*, informs us, that he found happy Effects, in the Cure of a Gonorrhœa, from the following Tincture or Essence, prepared with Cantharides:

Take of highly rectified Spirit of Wine, half a Pound; of Gum Guaiacum, half an Ounce; of Cantharides, one Dram; of Cochineal, two Ounces; of the Juice of *Hypocystis*, two Drams; of the Spirit of Sulphur, one Scruple: Digest the Whole in warm Ashes for twelve Hours, and filtrate thro' a coarse Paper.

Dr. Lister gave forty Drops of this in warm Ale in the Morning, and as many at Night, each Day. *Garidelius*, for a Gonorrhœa, highly extols a Medicine prepared in the following Manner:

Take of entire Cantharides, half a Dram; of the inspissated Juice of *Hypocystis*, and of the Gum or Extract of Guaiacum, each one Dram; and of Cochineal, one Ounce: Let them infuse in *Balneo Mariæ* for twenty-four Hours, in one Pound of Spirit of Wine. Let the Liquor, when strain'd, be kept for Use. The Dose is between half an Ounce and an Ounce, to be taken in the Morning fasting, and at Bed-time, in a Draught of the Decoction of Guaiacum.

In *Dunquien*, a Province of the *East-Indies*, they generally use the following Method of curing a Gonorrhœa:

They take one Handful of the Flowers of St. John's-wort, and of Crabs-eyes half an Ounce: These they boil in two Pints of Wine, which leaks from the Casks. After this they digest two Drams of Cantharides in one Pint of Spirit of Wine. This they mix with the Wine, and give a little of the Mixture internally, with a few Spoonfuls of Plantain-water. *Ephemerides Germanicæ Curiosæ, Decad. 1. a. 1.*

The celebrated *Werthofius*, in a total Suppression of Urine, when no other Remedies were of any Effect, and when the Patient laboured under the most terrible Symptoms, such as a Delirium, a convulsive Twitching of the Tendons, a cold Sweat on the Face, a hard Tumor of the Abdomen, an irregular, weak, and frequent Pulse, upon giving a Grain of the

K

Powder

Powder of Cantharides in an Emulsion, every fourth Hour, after the Exhibition of the third Dose, observed, that Urine, a little grumous and bloody, began to flow; afterwards a pituitous Urine was discharged; and lastly, it appeared limpid, with a Dysury. Because the Symptoms were forthwith mitigated, he continued the Use of this Medicine till the ninth Dose, by which means the Patient gradually discharg'd a larger Quantity of Urine, which at last was evacuated limpid, to the Quantity of several Pints a Day, with a Diminution of all the Symptoms: Thus, he little and little, the Man recovered a perfect State of Health by the Use of this Medicine alone. In obstinate Gonorrhœas *Bartholinus* also exhibited, with Success, one, two, or three Grains of Cantharides in Substance, with a Dram of the Bone of the Scuttle-fish; which Medicine he continued for several Days, according to the Effects it produced. This Preparation he thought less troublesome than infusing the Cantharides in Wine, according to the Directions of *Bartholine*, *Lifter*, and others; tho' he confesses, that he found the Medicine, prepared in their Manner, attended with Success. *Commercium Literarium*, A. 1733. But *Astruc*, in his Book of *Veneral Disorders*, asserts, that the smallest Dose of Cantharides, exhibited internally, in a Gonorrhœa, is not only a precarious and unsafe, but also a prejudicial Medicine.

That the drastic Force of Cantharides, by which they stimulate the urinary Bladder, may be corrected and subdued by Camphire, we have already observed under that Article. *Cockburn*, in the *Philosophical Transactions abridged*, Vol. 5. asserts, that Camphire does by no means produce this Effect; but Experience has confirmed the Falshood of his Assertion; for four Grains and an half of Cantharides, without the Heads, Feet, and Wings, with an equal Quantity of Camphire, exhibited in any Conserve, in the Form of a Bolus, happily, and without any Trouble or Pain, removed a Dysury in a Woman, who laboured under a Dropsy. But, without an Addition of Camphire, also in obstinate Obstructions of the Lochia and Menses, in difficult Births, and Retentions of the Secundines, very happy Effects have been produced by a Bolus, made up of

Three Cantharides, prepared; Troches of Myrrh, half a Scruple; Seeds of Bishops-weed, six Grains; and Rob of Hips, a sufficient Quantity. Small Ale, Water-gruel, or any Emulsion, may be used as a Vehicle. *Philosophical Transactions abridged*, Vol. 5.

In Hysteric Fits, and the most violent Suppressions of Urine, *Philippus Hoechstetterus* gave Cantharides in a Potion of the Juice of Mercury, with Essence of Cinnamon, and an Elæosaccharum of Cardamoms. He also put Cantharides in a Pessary, for the same Intentions. *Velschii Hecatestæ* 2. *Obj.* 72. In a Dropsy *Konigius* recommends a Powder compounded of

Six Grains of Cantharides; of Crabs-eyes prepared, of vitriolated Tartar, and Salt of Rest-harrow, each one Scruple: Of this a third Part is to be exhibited for a Dose.

For the same Disease some order four Ounces of the Decoction of the diuretic Roots, with an Addition of three Drams of Lantseed, and two Cantharides; but the Liquor must be strain'd before it is used. *Wieri Observat. Medic.* In Upper Hungary, beyond the River *Tis*, the Inhabitants are often seized with an extraordinary Disease, in which their Neck suddenly swells; after which a violent Heat in their Head succeeds, which diffuses itself all over the Body. Those who do not immediately apply a Remedy, die within four Days. This Disease is somewhat like the Hydrophobia. The Method of Cure they use is this:

They take, for one Dose, ten Cantharides, reduced to Powder, which, when drank off in a proper Liquor, sometimes excites a profuse Sweat, and sometimes a plentiful Discharge of Urine, without any manner of Pain.

This Remedy could scarcely be safely used in any other Nation; but the Hungarians beyond the River *Tis* are of very hardy and robust Constitutions, and imagine, that they may safely take the Cantharides whole, because they think their Feet prove an Antidote to the poisonous Quality lodged in their Bodies. *Ephemerides Germanicæ Curiosæ*, Decad. 1. a. 1. o. 133. These Hungarians gather the Cantharides, for the most part, from the Ash-tree, in the Month of May, or in the Summer, and preserve them in strong Vinegar, against the Poison of mad Animals. If a Man, a Horse, a Cow, or a Sow, are bit by any mad Creature, to the Man they give one, two, three, or five Cantharides; but to Animals a greater Number. They exhibit them entire, with the Wings, Head, and Feet, in Brandy, or with Venice Treacle, or Bread. Those who take two or three of these Cantharides, are neither afflicted with a Dysury, nor a Discharge of bloody Urine; but the Urine is only discharged in a larger Quantity, during both the whole Day and Night. *Prosper Alpinus*, in the last Chapter of his

fourth Book *de Medic. Ægyptiorum*, informs us, that, in Egypt, some Physicians prescribed to their Patients the Heads and Wings of four Cantharides, reduced to Powder, and exhibited in three Ounces of Endive-water; by which Medicine, they affirm, the peccant Matter is discharged, either by profuse Sweats, or plentiful Discharges of Urine. According to *Ettmuller*, these Insects are, by Women of profligate Characters, applied to the basest of Purposes; that is, expelling the Fœtus, before it has arrived at Maturity. Their Exhibition, in order to rouse the languid Inclinations to Venery, may also be justly reckoned among the Abuses of this Medicine. *Stenzelius*, in his third Book *de Venenis*, says, that it is well known, that Cantharides, dissolved in Essence of Amber, excite an insatiable Desire of Venery in both Sexes. From what has been said, it is obvious, that Cantharides, however poisonous a Quality they are of, prove a Medicine against several Diseases: But it is no easy Task to lay down a fixed and stated Rule for the safe internal Use of Cantharides, since one Physician prescribes them entire, and another without the Head, Wings, and Feet, accordingly, as he believes, that the Corrector of that Poison, which is lodged in their Body, is situated in the Extremities or otherwise. One Physician thinks, that they may safely be exhibited, when their deleterious Quality is corrected; and another embraces the contrary Opinion. All of them claim the Testimony of Experience in their Favour, which teaches, that even the external Application of Cantharides to the Body sometimes excites great internal Disorders; whereas at other times no such Effects are produced.

That the external Application of Cantharides only produces bad Effects on the more sensible Parts, especially the Urinary Bladder, and in others only when the Quantity is too large, is obvious; since numberless Instances occur daily of Patients, who sustain no manner of Injury by the Application of Vesicatories composed of Cantharides. These Insects may be more safely exhibited internally, and applied externally, with proper Correctors, than without them; for we seldom observe them used either for internal or external Purposes, without an Addition of some acid or oleous Substance, or perhaps both; and that these are Correctors of Cantharides, is sufficiently obvious. If, then, any unexpected bad Effects are produced by a Medicine prepared of Cantharides, the Patient, to whom it is exhibited, must either be very delicate, or the Dose too strong. For internal Use the safest way is to begin with a very small Dose at first; half a Grain, for Instance, increasing it gradually where the Nature of the Case calls for its Repetition. There is a Difference of Strength and Energy in these Insects, according as they are old or recent; for the volatile Salt they contain exhales and evaporates in time, for which Reason the recent must be the more efficacious of the two. From what has been said 'tis obvious, that great Caution is required, in order to render the Use of Cantharides safe; and that, on account of the many terrible Effects they have been observed to produce, they ought to be class'd among the Medicines not to be tamper'd with. In France a Law is enacted, discharging Apothecaries from selling them indiscriminately to every one who asks for them; and permitting them only to sell them to those they are acquainted with, and that too for external Use. *Pomet*, *Lih.* 2.

The Observation of some, that the Extremities of Cantharides render their Operation somewhat milder, is not altogether without Foundation; since the Hungarians, taught by Experience, affirm it to be Truth. *Bartholine*, in *Epistol. Medicin. Cent.* 4. tells us, in express Words, that, in order to render Cantharides mild for internal Purposes, they are to be used entire; and that, when Blisters are to be raised on the Skin, the Extremities, as being of a milder Nature, are to be thrown away. *Boerhaave*, in his *Alateria Medica*, for a Vesicatory prescribes Cantharides without Wings, these being of a milder Nature, and therefore less proper for Vesicatories. Hence *Benancius*, in his *Declaratio Fraudum apud Pharmacepavos commissarum*, blames those Apothecaries, who, running into the common Error, reject the Wings of the Cantharides, contrary to the Prescription of the Physician, who intends they should be retained for the Advantage of the Medicine; for these Insects are sometimes to be sold in the Shops without their Wings, their Heads, and Feet, and after they have been impregnated with the Steam of boiling Vinegar, dried, and kept for two Years. Those found among the Corn, of a changeable Colour, with transverse yellow Streaks on their Wings, and oblong Bodies, are esteem'd the best.

Fifteen, twenty, or thirty Drops of the Tincture of Cantharides, prepared with the Tincture of Salt of Tartar, are, by *Willis*, in his *Pharmacuticæ Rationalis*, commended as an excellent diuretic Medicine. *Ettmuller* directs this Tincture to be prepared in the following manner:

Take of Cantharides, half an Ounce; Salt of Tartar, six Drams; sprinkle a sufficient Quantity of Water upon them; and, when reduced to the Form of a thin Poultice, put them in some moderately hot Place, continuing to sprinkle

sprinkle Water upon them, if they should become dry. When they have stood eight or ten Days and Nights, let tartarized Spirit of Wine be pour'd upon them, to extract the Tincture, which, for the sake of a beautiful Colour, may be tinged with the Powder of Cochineal, which are also a Species of Cantharides, and possess'd of a highly diuretic Quality.

The Tincture of Cantharides, in *Fuller's Pharmacopæia*, is thus prepared :

Take Powder of Cantharides, half an Ounce ; the best Spirit of Nitre, one Ounce : Digest for twenty-four Hours ; then add of camphorated Spirit of Wine, three Ounces, and digest for some Days ; afterwards filtrate the Liquor.

This Medicine is used for provoking Urine, for Ulcers of the Kidneys and Bladder, for a Gonorrhœa, and for the wandering scorbutic Gout. The Dose is from four to twenty-two Drops twice a Day, in a Draught of the Decoction of Mallows, edulcorated with Syrup of Violets. In the *Collectanea Chymica Leydensia*, this Tincture is ordered to be thus prepared :

Take of Cantharides, one Ounce ; pour upon them of the strongest Spirit of Nitre, two Ounces : Digest for twenty-four Hours. Thus the Cantharides will be dissolv'd, and the Spirit acquire a reddish Colour. To this Tincture add six Ounces of Spirit of Wine ; digest together ; and the longer the Digestion is continued, so much the better ; for a stated Time cannot be specified. Then let the Liquor be filtrated, and kept for Use.

This Medicine is lithontriptic and nephritic, cures a Gonorrhœa, and is of Service in the Gout, the Rheumatism, and the Jaundice. The Dose is from two to twenty Drops at most, twice a Day. If an antinephritic Powder is desired of this Solution made with the Spirit of Wine, we are to proceed in the following manner :

We are to add to this Solution two Parts of common Water ; and afterwards to drop into the filtrated Solution a sufficient Quantity of the Oil of Tartar *per Deliquium*, till the Effervescence ceases. Thus there will be precipitated to the Bottom of the Vessel a Powder of a yellowish-red Colour, which is to be separated from the Liquor, edulcorated, and afterwards dried in the Shade. The Dose of this Medicine is from one Grain to four. If the remaining Liquor, when separated from the Salt, is evaporated till only a third of it remains, it will yield Crystals of a highly antinephritic Quality ; the Dose of which is from two to twelve Grains.

The Tincture of Cantharides, in the *Edinburgh Dispensatory*, is prepared thus :

Take of Cantharides, two Drams ; of rectified Spirit of Wine, half a Pound : Digest for two Days in a very gentle Heat ; then pour of the strained Tincture upon one Ounce of Balsam of Capivi ; of Gum Guaiacum, half an Ounce ; and of Cochineal, half a Dram : Digest in a Sand-heat for four or five Days ; strain the Tincture, and add to it of Camphire, two Drams ; and of distilled Oil of Juniper, one Dram.

This seems to be a good Remedy against a Gonorrhœa ; and fifteen or a few more Drops of it may be exhibited for a Dose, in a proper Vehicle.

In the *London Dispensatory* the Tincture of Cantharides is prepared thus :

Take of Rhubarb, three Drams ; of Gum Guaiacum, a Dram and an half ; of Gum Lac, one Dram ; of pounded Cantharides, two Drams ; and of Cochineal, half a Dram : Infuse in a Pound and half of rectified Spirit of Wine, and strain off the Tincture.

But *Wedelius* observes, that common Spirit of Wine is more proper for extracting the Virtues lodg'd in the Salts of Cantharides, than that which is rectified. It is also to be observ'd, that Cantharides may be more conveniently prescrib'd by their Number than their Weight, since they are so very light, that fifty of them scarce weigh a Dram.

The Magistery of Cantharides is the Powder of these Insects dissolved in Spirit of Nitre, and precipitated by an Addition of Oil of Tartar *per Deliquium*. This Medicine is possessed of a diuretic Quality, according to *Ludovicus*, in his *Pharmacopæia* ; but, according to *Ettmüller*, the diuretic Virtue is rather destroy'd by the Precipitation. *Langius* informs us, that these Insects are by some used, in order to secure the Fruit of their Orchards from being stolen. A little of the gross Powder of Cantharides is put upon Apples, Plums, Figs, or Peaches, that grow on the lowest Parts of the Trees. When these are stolen and

eaten by the Thieves, they are sufficiently punish'd for the Theft, by an intolerable Heat of Urine, and a Stillicidium : So that by this Medicine Thieves are more effectually banish'd from Gardens, and discover'd, than by *Priapus* the God of the *Lampsaceni*. But it is a monstrous Abuse of this Medicine, when poor People, of a fraudulent Turn, raise Blisters on themselves with it, in order to move Compassion, and extort an Alms, which the charitable and well-disposed Part of Mankind think their counterfeit Misery deserves. *Rieger*.

The Essence or Tincture of Cantharides, directed in *Quincy's Dispensatory*, is thus prepared :

Put four Ounces of bruised Cantharides into a Cucurbit, and pour upon them, by a little at a time, of Spirit of Nitre, twelve Ounces, and let them stand in Digestion twelve Hours ; then with a Glass Spoon or Spatula take off the black Scum from the Surface of the Spirit, which cast away ; pour gradually upon them of tartariz'd Spirit of Wine, one Pound : Mix them well by shaking, and place them in a Sand Furnace ; lute on a Head and a Receiver ; kindle the Fire, which gradually increase to the second Degree ; and in that Heat draw off a Pound and an half of Spirit, which keep for Use.

To that which remains in the Cucurbit, put, by a little at a time, so much Nitre as will satiate its Acidity, which may be known by the Ebullition ceasing ; then put that Mixture into a Glass or Marble Mortar ; put to it of Camphire, one Ounce, and grind them till they are well incorporated, and return them again into the Cucurbit ; rince out the Mortar with some Spirit of Wine, which was drawn off from them, and pour into the Body, with the remaining Part of the Spirit of Wine ; shake them well, and set them into a digestive Heat ; make the Cucurbit a Circulatory ; lute the Joint close, and let them stand in that Heat eight or ten Days, shaking them well every Day ; then let it cool, and stand to settle ; pour off the Tincture into a clean Cucurbit ; and in a very gentle Heat draw off one half or more of the Spirit, which again put upon the Mixture, to extract more Tincture ; and when that Spirit is again ting'd, draw off two Thirds, which put the third time to extract more Tincture, and distil as before, still putting the Tincture remaining after Distillation of the Spirit to the first Tincture. Then take of Ambergrise, one Dram ; Musk, half a Dram ; white Sugar-candy, two Drams : Grind them well together, with a little of the Spirit last drawn off ; pour them into a Matrafs, and to them put four Ounces of the aforesaid Spirit ; close the Matrafs well, and set it to digest for four or five Days more ; then put it to the Tincture of Cantharides, (also in a Matrafs) and let them circulate together four or five Days more ; then pour it into a clean dry Bottle, which keep well stop'd for Use.

The Materials must be put together, so as to prevent the Fume's being offensive in every Part of the Process. This may be pronounced a most excellent Medicine, in many Cases, where we have not its Succedaneum, nor any thing tending that way. It is a most stimulating Cordial, and cannot fail to excite to conjugal Intercourses, where a Constitution, by any Misfortune, has fallen into a Coldness or Indifference that way ; for (if the Expression may be allow'd) where there is Fuel, it will infallibly kindle it. The Satyrion, and all of that Tribe, are not to be compar'd to it. In many Cases also, where sluggish and cold Humours have clogg'd the Reins and Genital Parts, and thereby occasioned other Mischiefs, besides an Inability to Coition, this Medicine is of mighty Service, and will answer where the most efficacious Balsams and Turpentine fail. It may be given from ten to an hundred Drops, in a Glass of Canary, or any other Liquor which a Patient may like better. But notwithstanding these Commendations of this Medicine, which indeed cannot be greater than it deserves, yet none but the truly Skilful must dare to meddle with it ; for, by an injudicious Administration, it may occasion Stranguries, Erosions, Excoriations, and even Convulsions : Such is the Difference of an efficacious Medicine in the Hands of a good Physician, and an Empiric ! This, therefore, as well as all the best Remedies, will for ever continue a Secret in the Hands of the Learned, notwithstanding its Preparation is in the Knowledge and Power of every Person. *Quincy's Dispensatory*.

I must not dismiss the Subject of Cantharides without taking some Notice of a memorable History relative to these Insects.

In the Year 1693. Dr. *Groenvelt* was cited before the President and Censors of the College of Physicians, on account of prescribing Cantharides in Substance to a Woman in *Southwark*, before whom he vindicated his Practice ; but a few Years after, upon some trifling Quarrel betwixt one of the Censors at that Time and the Doctor, he was again summon'd before Sir *Thomas Adlington*, President ; Dr. *Burwell*, *Torlesse*, *Dawson*, and *Gill*, Censors ; and after some Proceedings not altogether justifiable, as the Dr. complains, he was taken up by a Warrant, sign'd by the Presi-

dent

dent and Censors, and committed to *Newgate* for bad Practice. The Doctor had the good Fortune to be acquitted upon a Point of Law, which determines that bad Practice must be accompanied with a bad Intention, in order to make it criminal. And, indeed, if it was otherwise, no one could practise Physic without being in perpetual Danger of incurring the Censure of the Law, unless he was infallible, which, in the present frail State of human Nature, I believe very few pretend to be; and even Infallibility would be a very precarious Guard against Malice, Envy, and the interested Views of open Enemies, or treacherous Friends.

This Affair ruin'd the Doctor to such a Degree, that it is said he was buried at the Expence of the Parish; but I cannot assert that this last Particular is true. Ruin'd, however, he was, with this singular Advantage accruing to Physic from his Persecution, that the Reputation of Cantharides in Substance, as an internal Remedy, was establish'd by it, inasmuch that all Physicians, whose Obstinacy or ill Will did not hinder them, came immediately into the Practice of exhibiting them. The Distempers in which Dr. *Groenewelt* principally recommends them are Ulcers of the Bladder, Gravel, or mucous Obstructions in the urinary Passages, Suppression of Urine, and Dropsy, particularly in Women. His Manner of prescribing them was usually thus:

Take of Cantharides dry'd and powder'd, twelve Grains; Camphire, dissolv'd with Oil of sweet Almonds, fifteen Grains: Of this make two Boles; one of which is to be taken three Hours after the first, Evacuations suited to the Case being premised.

At Night let half a Scruple of *Matthew's Pills*, with eight Grains of Camphire, be taken by way of Purgative. Mean time let the Patient drink copiously Emulsions, Broths, Milk, or emollient Decoctions, with or without Gum Arabic. The Physician alone who has an Opportunity of observing the particular Circumstances of the Case, and the Effects of the Remedy taken, is able to determine how long all, or any of these Medicines ought to be continued.

It must, however, be confess'd, that Cantharides ought not to be given in this manner, without the utmost Prudence and Caution; because, otherwise, they may prove highly pernicious.

CANTHI, *καὶθί*. The Cavities at the Extremities of the Eyelids, commonly called the Corners of the Eye; the greater of them, or the great *Canthus*, is next to the Nose; the lesser or little *Canthus* lies towards the Temple. *Ruffus Ephesus*, Lib. 1. Cap. 4.

CANTIANUS PULVIS. A cardiac Powder, which goes by the Name of *The Countess of Kent's Powder*. See the Prescription of it under **CANCER**.

CANTION, *καὶθίον*, in *Myrepsus*, *Antidot.* 35. and 94. is an Epithet of *σάκχαρος*, or *σάκχαρον*, *Saccharum*, Sugar, signifying in Conjunction with it Sugar-candy. This is doubtless his Meaning, says *Fuchsius*, because all the Latin Copies translate it *Saccharum Candi*. He observes also, that the Word is corruptly written *καὶθίον* for *καὶθίον*, and that *Myrepsus* curtails the Word in Imitation of the *Latins*, who read *Candi* instead of *Candulum*.

CANTRICES. Singing-women. Those Women who are Singers or Dancers, according to *Actius*, from *Rufus* and *Aspasia*, *Tetrab.* 4. *Serm.* 4. Cap. 51. have no menstrual Purgations, because whatever is superfluous in them is consumed by their too violent Exercise.

CANTUM, **CANTIUM**, *καὶθίον*, *καὶθίον*. A Word in Use among the *Greeks* of the middle Ages, who had degenerated from the ancient Purity of their Language, to signify *angular*, and apply'd to crystallized Sugars. This *Vander Linden* endeavours to prove out of *Salmasius* and *Meursius's* Glossary, and criticizes on those who write *Saccharum Candum*, when it should be written, as he says, *Cantum*, or *Cantium*. *Castellus*.

CANUM CERASA, Dog-cherries. A Species of *Periclymenum*, the same as *Xylosteum*. See **PERICLYMENUM**.

CANUTUM, **CANNUTUM**. A Reed or Cane. *Rulandus*.

CANZE, **CARNIT**, **CANNA**, **CUSANUM**. Several kinds of Vessels. *Rulandus*.

CAOPOIBA *Brasilienfis*, *Maregrav.* *Pomifera Brasilienfis*, *Fructu Capulae insidente*, *Seminibus singulis duplici Pellicula involutis*. It is also spelt *Coapaiba*.

A Tree growing in *Brasil*, of the Height and Shape of a Beech. Its Bark is of an Ash-colour intermix'd with Brown, like water'd Stuffs. The Leaves are solid and oblong, the Pedicles of which being broken, yield a milky Liquor. The Flowers stand each on its Pedicle, and are as big as a Rose, and consist of white Leaves like those of Roses, with fine red Ungues, and, in the Place of an Umbilicus, have a yellow resinous Globule, of the Bigness of a Pea, which yield a Resin as clear as Turpentine, glutinous and yellow, but of an unpleasant Smell. The Fruit is seated in a Capsule much like an Acorn; and being cut lengthwise before it is ripe, shews many Rows of Seed

of the Size and Shape of Apple-kernels. Every Seed is inclosed in a red Pellicle, which is surrounded with another of the Colour of Vermilion. The Pulp of the Fruit is yellow, and yields a yellow Juice. The Bark, tho' thick, is easily separated from the Wood, which is brittle, and contains a Pith which is easily extracted, and leaves the Wood hollow like a Tube.

There is another Species of this Tree, which has a grey Bark, with oblong carinated Leaves, like those of the *Mureci*, but not downy. The Fruit is round, and of the Size of a Tennis-ball; when ripe, green on the Outside, but red within, and full of small Grains like a Fig, dry, tasteless, and eaten by some, but not valued. I find no Medicinal Virtues ascribed to these Trees.

Raii Hist. Plant.

CAOVA, **COAVA**. A Drink, the same as **COFFEE**. *Raii Hist. Plant.*

CAOUP. A Tree in the Island of *Muragnan*, in *America*, with Leaves like an Apple-tree, but broader; the Flowers red mix'd with yellow. The Fruit is not unlike an Orange in Shape and Taste, and full of Kernels. *Raii Hist. Plant.* 1693.

CAPELLA. A chymical Vessel the same as *Capitellum*, or *Alembicus*, which see. Others by *Capella* understand the same as *Cupella*, which see. *Rieger*.

CAPER, *Offic. Schrod.* 5. 275. *Mer. Pin.* 166. *Aldrov. de Quad. Biful.* 619. *Chalt. Exer.* 9. *Johnst. de Quad.* 46. *Gesn. de Quad.* 265. *Schw. de Quad.* 98. *Capra domestica*, *Raii Synop. A.* 77. **THE GOAT**.

The Blood, the Marrow, the Suet, the Milk, the Whey, the Stones in the Stomach, the Dung, the Urine, the Bladder, the Omentum, the Skin, and the Gall of the Goat are all used in Medicine.

The Blood is accounted alexipharmac, deobstruent, proper in Dysenteries, and calculated for resolving coagulated Blood, and dissolving the Stone. *Dale from Schrod.*

The He-goat's Blood, and especially, if we believe *Van Helmont*, that which is taken from his Testicles, being dry'd in the Sun, is good against Poison, for provoking Sweat, Urine, and the Catamenia; and is proper in a Pleurisy. The Dose is from twenty Grains to two Drams. *Lemery on Foods*.

The Marrow of the Goat is more acrid and dry, and consequently more efficacious, than that of other Animals. *Dale from Schrod.*

The Fat and Marrow of the He-goat are of a softening, dissolving, and qualifying Nature, and are also reputed to be good for strengthening the Nerves. *Lemery on Foods*.

Goats Suet is a powerful Discurient, relieves those afflicted with arthritic Pains, removes Stranguries, and allays hæmorrhoidal Pains.

Goats Milk is of a nutritive and abstergent Quality, and esteem'd proper for hectic and phthical Patients, and such as are consumptive or emaciated.

Goats Whey is preferable to that obtained from the Milk of any other Animal, as it is aperient, abstergent, attenuating, and laxative; and for that Reason it is frequently used in Infusions for purging Melancholy.

The Stones found in the Stomachs and Gall-bladders of Goats are said to be possess'd of a solvent and diaphoretic Quality. See **BEZOAR**. *Dale*.

We sometimes meet with small Stones in the Gall of a Goat, which are very like the true Bezoar-stone. They are good against Poison, and promote Sweat. *Lemery on Foods*.

Goats Dung is of a heating, drying, abstergent, digerent, aperient, and acrid Nature; for which Reason it is principally used in hard Tumors of the Spleen and other Parts, Swellings of the parotid Glands, Buboës, and for consolidating desperate Ulcers, as also in Dropsies, and sciatic Pains. When calcined, it makes a fine Powder, proper in all Cases where the Use of Detergents is indicated, such as Alopecia and Ring-worms. Internally it is properly exhibited in Disorders of the Spleen, Jaundice, Obstructions of the Menfes, and other Diseases of a like Nature. *Dale from Schrod.*

Goats Dung contains much volatile and sharp Salt, which makes it to be of a dissolving, deterfive, drying, and digesting Nature, fit to remove Obstructions of the Bowels; and good for the Stone, if inwardly taken. They also apply it outwardly for dissolving cold Tumors, and other Distempers, wherein it is used for attenuating the Humours. *Lemery on Foods*.

Goats Urine is recommended above that of all other Animals for dissolving the Stone, and promoting a Discharge of Urine; for which Reason it is proper in the Dropsy.

The urinary Bladder of a Goat dry'd and reduc'd to a Powder is said to be a Medicine of peculiar Efficacy in an Incontinence of Urine.

The Omentum of a Goat, apply'd hot, allays and checks turbulent Motions of the Spirits, for which Reason it is very properly used in Colic Pains and a Mania.

The Skin of a Goat relieves Diarrhæas, stops Hæmorrhages, and especially that of the Nostrils.

The Gall of a Goat is said to cure Quotidian Fevers. *Dale from Schrod.*

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They mix the Gall of a Goat with Bread, the Whites of Eggs, and Oil of Laurel; and thus 'tis looked upon to be good for a Quotidian Ague, if apply'd by way of Cataplasm to the Navel. *Lemery on Foods.* See CAPRA.

CAPETUS, καπέτος, a Pit, Ditch, or Trench, in *Hippocrates, de Articulis*, signifies those Holes or Niches which are cut in the *Bathron* or *Scamnum*, (a Machine for restoring Luxations) for the Strengthening and better Management of the Axes. *Hippocrates* directs these *Capeti*, or Niches, to be made in the lower Part of the *Scamnum*, at Intervals of four Fingers Breadth, three Fingers Breadth in Depth, and as many wide. Thus *Galen*, on this Place; with whom agree *Erotian* and *Paulus Aegineta*. *Foefius, Gorraeus.*

CAPHORA, CAPHURA. The same as CAMPHORA.

CAPICAGTINGA, aliis *Jacareatinga, Acori Species.* Pison.

A Species of *Acorus* growing in the *West-Indies*, much like the *European* in the Shape of the Root and Leaves, tho' not so large; but is as much superior to it in Virtue, as exceeded by it in Size, especially the Root, which is hot and dry, and of a grateful bitterish and aromatic Taste. Taken alone, or mixed with other things, it is not only an effectual Incisive of cold peccant Humours, but is successfully used as an Antidote against Poison received inwardly both by Natives and Foreigners. It does not always grow in watery Places like the *Iris*, but thrives in other Places of a flat Situation, and glebous Soil.

CAPILACTEUM, ἀπρόγαλα. See APHROGALA.

CAPILLAMENTA, Capillaments, in Botany, signify, first, those slender sort of Filaments which spring up within the Leaves of a Flower, and are more usually called *Stamina*, whence a *capillaceous* Flower is the same as a *stamineous*; and, secondly, by *Capillamenta* are meant those slender Parts or Filaments which resemble Hairs, and are produced from Vegetables; as, for Instance, from Seeds, *Columel. R. R. l. 4. c. 11.* and Roots, *Pallad. R. R. l. 11. c. 12. Rieger.*

CAPILLAMENTUM, τριχώμα, τριχωμάτιον, properly signifies any hairy or villous Integument belonging to Animals, as *πτερόμα* is put for the pennous or feathery Integument of Birds; in this Sense *Capillamentum* is the same as *Capillitium*. See the preceding Word.

CAPILLARIS, τριχώδης, τριχωσίδης, is applied in general to any thing that resembles Hair, particularly to the smallest and extreme Parts of the Veins and Arteries; it is also an Epithet of Distinction for such sorts of Plants, as, according to *Ray*, have no main Stalks, but bear their Seed on the back Side of their Leaves, and are called *Capillares*, he says, because they are supposed to remedy all Defects belonging to the *Capillus* (Hair); or they are called *Capillary*, because they grow close to the Ground, as the Hair grows to the Head.

Capillares Vermiculi with some signify those small Worms in Infants, which are otherwise called *Crines*, *Crinedones*, and *Dracunculi*. *Castellus.*

CAPILLATIO. A Capillary Fracture of the Cranium. See TRICHISMOS.

CAPILLITIMUM. Properly the same with *Capillamentum* (see before); but is sometimes used for *TRICHIASIS*, which see.

CAPILLORUM DEFLUVIUM. The same as ALOPECIA.

CAPILLUS signifies properly the Hair of the Head, but is also used to signify any sort of Hair in general. *Castellus.*

CAPILLUS, the Hair, in *Rulandus*, is called LAPIS REBIS.

The Hairs are observed by the Microscope to be hollow, and furnished with a Multitude of Vessels; and, however they appear to us to be simple and equal, the Microscope shews them to be knotted like some sorts of Grass, and to send out Branches at the Joints. Their Cavity has been otherwise proved by the Distemper called the *Plica Polonica*, in which the Blood itself has drop'd through the Hairs. But I have never seen this Case, and am inclined to doubt, whether the Blood that issues be not sent from other Vessels, and only runs externally from the Root of Hair to the Extremity.

As for the Branching of the Hair, 'tis pretty visible at the Extremities with a Microscope; for it is very apt to split (as the Hair-cutters call it) especially if it be worn long, and kept dry. This Division of the Extremity (which, to the naked Eye, seems to consist but of two or three Hairs) by the Microscope appears to be a Brush of Hair.

Each of these Hairs has a little bulbous or oval Root in the Skin, which sometimes adheres to it so as to be plucked away with it.

They are commonly reputed an Excrement, and esteemed to be nourished by such; but, whatever the Matter of their Nourishment is, it seems to be more simple than the other Humours of our Bodies. For long after Death, when all the other Parts and Humours are putrefied and corrupted, the Hair will vegetate and increase, which it appears to do so long as any Moisture remains in the Part. *Drake's Anatomy.*

Those that have by Nature soft, thin, and short Hair, which, with great Difficulty, receives or retains a Buckle, and those

who readily run into Baldness, or Shedding of the Hair, towards the Spring, are certainly of a loose, flabby, and relaxed State of Nerves: For the Hair seems to be only some of the fleshy Fibres lengthened outwards, and hardened; at least they seem to be of the same Kind and Nature with the other Fibres, consist of a great many lesser Filaments, contained in a common Membrane, and are solid, transparent, and elastic: And as the Hairs are in Strength, Bulk, and Elasticity, so generally the Fibres of the Body are; and those whose Hair sheds, turns thin, lank, or refuses Buckle, if it does not happen to them after recovering from an acute Distemper, ought to take care they fall not into nervous Disorders, which anointing their Hair with sweet Oils, or washing their Hands with Honey-water, will scarce prevent.

Other things being equal, those of the fairest, clearest, and brightest coloured Hair, are of the loosest and weakest State of Fibres and Nerves, not only because the fairest and lightest is the most rare, transparent, and fungous, but because Bodies of the lightest Parts consist of Parts of a weaker Union, which adhere with less Force, and consequently are less elastic, firm, and springy, than those of the darker, and more opaque Colours. We generally observe, that People of very fine and white Hair, especially if so after they are come to Maturity, are of weak, tender, and delicate Constitutions: And those who deal in making artificial Covers for the Men or Women, find that such Hair will never, with any Credit to them, serve these Purposes, and seldom honestly employ it for that End. *Cheyne's English Malady.*

CAPILLUS CANADENSIS. The same as ADIANTHUM CANADENSE.

CAPILLUS VENERIS. See ADIANTHUM.

CAPILENIUM. A barbarous Word, used by some for a Catarrh. *Baglivi* makes use of it to signify that continual Heaviness, or Disorder in the Head, which the *Greeks* called *καρβεζία*, *Carcharia*.

CAPISTRATIO. The same as PHIMOSIS, which see.

CAPISTRUM, φινδε, φινος, κινδε, besides its common Signification, a *Bridle*, is a Name for some sorts of Chirurgical Bandages used about the Head. *Castellus.*

CAPISTRUM Auri. Borax. *Rulandus.*

CAPITA, Heads in Plants, are either those Receptacles of the Seeds, which by their globous Figure represent a Head; as the Heads of Poppy, for Instance; or else they are the same as *Bulbi*, *Bulbs*.

CAPITALIA. The same as CEPHALICA, which see.

CAPITATÆ Plantæ are Plants whose Seeds, with their Down, being included in a squamous Calyx, are conglobated into a roundish Figure resembling a Head. *Raii Hist. Plant.*

CAPITELLUM, in *Johnson's* Lexicon, is soapy Water; in *Libavius*, and some other Authors, it signifies a Lixivium; it is also taken for an Alembic. *Castellus. Rieger.*

CAPITILUVIUM. A Bath or Lotion for the Head. *Rieger.*

CAPITIS DOLOR. See CEPHALALGIA.

CAPITIS VENA. See VENA CEPHALICA.

CAPITO. The Surname of *Artemidorus* the Physician, who published the Works of *Hippocrates*, and is often mentioned by *Galen*.

CAPITO ANADROMUS. A Fish which lives both in the Sea, and in Rivers. It has a great Head, large, beautiful, white Eyes, a thick Snout, a long Body, covered with small Silver Scales, mixed with a little Blue. It weighs about two Pounds when at its full Bigness, lives upon small Fishes and Insects, and is very good to eat.

It is thought to be proper for purifying the Blood, and to provoke Urine. *Lemery des Drogues.*

CAPITULUM. The botanic Signification of *Capitulum*, or *Capitellum*, is given under the Article BOTANY; in Chymistry they are the same as ALEMBICUS, for which see that Article; in Anatomy they signify a smaller Process or Prouberance of a Bone, received by another Bone.

CAPIVARD, in *Portuguese*, signifies a Water-dog, which is described to be an amphibious Animal, with a Body like a Hog, and Head like a Hare, and without a Tail. It keeps itself almost continually on its Posteriors, like an Ape. It is found in *Brazil*. It lives all the Day in the Sea, and at Night comes on Shore to ravage the Gardens, and root up the Trees. Its Flesh is wholesome Food. *Lemery des Drogues.*

CAPNELÆUM, καπνίλατον, in *Galen, Lib. 2. C. M. S. L.* is a Resin which flows spontaneously; "of which he says there is Plenty in *Lacedemon*; in *Cilicia* they call it *καπνίλατον*, " *Capnelaion*, [from *καπνός*, Smoke, and *εἶμαρ*, Oil] smoky Oil." And in *Lib. 3. C. M. S. G.* he says, that in *Lacedemon*, and some other Places, they call these sorts of Resins *πρωτόρρυτοι*, "the first Product." It seems to be called *Capnelaion*, says *Foefius*, from the Smoke it gives when placed nigh the Fire, or because it is more liquid than all other liquid Resins, as well as hotter and thinner, and consequently comes nearer the Nature of Oil.

C A P

CAPNIAS, καπνίας, from καπνός, Smoke; a sort of Jasper, of a smoky Colour. *Actius, Tetrab. 1. Serm. 2. Cap. 36.* Also a kind of Vine which bears part white and part black Grapes. *Theophrastus de Causis Plant. Lib. 5. Cap. 3.*

CAPNISTON, καπνιστόν, is an Epithet of a sort of Oil, prepared of several sorts of Spices and Oil, by kindling the Spices, and suffumigating the Oil.

CAPNITTIS, καπνίτις. See **CADMIA**.

CAPNOIDES, καπνοειδής, (from καπνός, *Fumaria*, Fumitory, and εἶδος, a Resemblance, on account of its Likeness to Fumitory) Potted Fumitory.

The Leaves and whole Face of this Plant resemble Fumitory; but the Style of the Flower becomes a long taper Pod, which contains many round shining Seeds. *Miller's Dictionary.*

CAPNORCHIS, *Indian bulbous-rooted Fumitory.*

This has the whole Face of Fumitory: The Root is sometimes tuberous, sometimes scaly, and at other times bulbous. The Flower consists of two Leaves, is of an anomalous Figure, and hangs downward. The Pods are like those of Shepherd's-pouch. *Idem.*

CAPNORCHIS Americana, Boerh. Ind. *American bulbous-rooted Fumitory.* The Flowers of this Plant are somewhat like those of Fumitory. *Idem.*

I find no medicinal Virtues ascribed to the three foregoing Plants.

CAPNOS, καπνός. The same as **FUMARIA**, which see.

CAPO, *Capus*, *Gallus Spado*, *Gallus Euviratus*, and the *Ἀστειόμορος καπνορίας* of the *Greeks*, are so many different Names for that Animal we call a Capon, or castrated Cock. The Design of performing this Operation is to tame and destroy the Lust of the Animal, to render him a fit Leader for the other Poultry, but principally to put his Flesh in a Capacity of becoming more fat and nourishing than it was before. *Martial* reckons their Flesh one of those delicate Foods sought after by Gluttons and Epicures. But tho' the Flesh of the Capon is allowed to be highly nutritive, and to generate a large Quantity of laudable Blood, yet some celebrated Authors, among whom is *Joannes Crato*, a Man of great Judgment and Learning, have forbid the Use of them, especially to gouty Patients, because they observed, that this Fowl was itself subject to arthritic Disorders; as if those who eat the Feet of Capons should, for that Reason, be afflicted with the Gout, or as if, when eaten, their Quality was not altered by the concoctive Powers of the Stomach. Capons are not therefore to be condemned, because they are sometimes seized with the Gout, since that Disorder is in them produced by a Defluxion of Humours, and an Imbecility of the Parts which receive them, which Accidents can never be produced in our Bodies by eating their Flesh. But if it should happen, that any one should, by eating the Flesh of this Fowl, be afflicted with the Gout, this is rather owing to these Capons being fed in Cages by the Poulterers; by which means their Flesh is rendered moist and recrementitious, and consequently fit for generating and increasing Obstructions in the Body. For this very Reason *Galen* condemns all Fowls fed by the Poulterers. It may justly be asked, whence it happens, that a Capon, which is a Eunuch, and free from Venereal Inclinations, should be subject to the Gout; since, according to the twenty-eighth Aphorism of the sixth Book of *Hippocrates*, *Eunuchs are not afflicted with the Gout*; and that a Cock, which is highly salacious, should not in the least be subject to that Disorder! *Scaliger*, in his *Exotericæ Exercitationes*, answers this Question, by saying, that Capons are seized with the Gout, because their Heat is small, and their Appetite great; whereas in Cocks the Heat is great, and the Appetite little. The Heat, says he, of the Capon is small, in consequence of his Virility being destroyed by Castration. Hence, by the Vornicity and Weakness of the Heat, many superfluous Humours are generated in the Body of the Capon, which falling to the Feet, these more ignoble Parts, which are weak in consequence of their cold and exsanguious Nature, produce a Gout. On the contrary, as a Cock eats more sparingly, and abounds in natural Heat, his Body must be free from Crudities, and superfluous Humours, and consequently not subject to the Gout. And tho' it may be objected here, that a Cock weakens his Feet by excessive Venery, and so disposes them for the Reception of foreign Matter, yet we may answer, from *Galen*, that the bare Weakness of the Feet is not sufficient for the Generation of the Gout, but there is required also an Influx of the Humours into those Parts, without which a Gout can never be formed. But there can be no Influx without an antecedent Concervation, which can never happen whilst the Heat is of sufficient Strength to digest the Food, and to consume or expel Superfluities; and if the Animal be moderate in Eating, and be frequently exercised. This being the Case with respect to Cocks, it is no wonder that they are free from the Gout, tho' frequent in the Use of Venery. *Scbizius de Aliment. Facult.* The ancient Physicians scarce ever mention Capons, but universally agree in pronouncing all Aliments, if castrated in

C A P

Season, to be the best in their kind for Food. *Castellanus de Esu Carnium.* And it is now the universal Opinion, that the Flesh of Capons, especially cram'd and young, is not only savoury, but easy of Digestion, and highly nutritive. On these Accounts it is not only prescribed as a Restorative to Persons on their Recovery from Sickness, being variously prepared, as roasted or boiled, and especially seasoned with Lemons or Oranges; but Jelly-broths made of the same are recommended in chronical Distempers as a Strengtheners, and are thought to be of excellent Service, particularly in a Hectic Fever and Phthisis. The way of Preparation in these Cases is thus:

They bruise the Capon, Bones and all; and then inclosing it in a Pot, with a little Cinnamon and Salt, clap it into a Copper Vessel full of boiling Water; and when it has boiled a sufficient Time, take it out, and serve it up to the Sick as a Strengtheners.

Some, for Ostentation, or out of Ignorance, add Gold Coins, especially those of *Hungary*, in the Boiling. *P. Hermanni Boecler Cynosura Mat. Med. Tom. 2.*

As it is Labour lost to search after nourishing Virtues in distilled Waters, so it is a ridiculous Piece of Vanity to expect Nutriment from the nauseous distilled Water of the minced Flesh of a Capon. *Boerhaave's Chymistry, Vol. 2.* Wherefore those Capon-waters, which are compounded with an Addition of Powders which yield forth their Virtues in the Distillation, would have the same Virtues, were there nothing of a Capon used in the Process; so that the Apothecary does no Injury neither to his Patient, nor the Reputation of the Physician who advised such Capon-water, if he turns the Bird out of the Distiller's Laboratory into his Kitchen to be dressed: Hence we may form a Judgment of the *Aqua Caponis Quercetani*, which is distilled from a Capon with Aromatics and Wine, and is recommended for recruiting the Strength, and abating continued Fevers. *Quercetani Pharmacopœia.* *Mynsicht's Aqua Caponis* is still a less elegant Composition, since it has fewer Aromatics, with an Addition of mucilaginous and refrigerating Substances, which, in Distillation, yield none of their Virtues, nor to mention the Species *Diamargariti frigidi*, in the room of which *Quercetan* ordered prepared Coral, equally ill calculated for Distillation. *Mynsicht's Thesaurus.* The *Aqua Caponis*, in the *Dispensatorium Brandenburgicum*, and the *Pharmacopœia Augustana*, is prepared of the Broth of a Capon, with the distilled Waters of Borrage and Bugloss, and an Addition of the Four cordial Flowers, and Cinnamon. This Water is recommended as an Analeptic. But *Zwelfer*, in his *Animadversiones ad Pharmac. August.* has justly observed, that "Consumptive Patients, and such as are extenuated by chronical Disorders, might be more effectually recruited by the Exhibition of Capon-broth, mixed with the best Cinnamon-water, and other Cordials, without Distillation, than by the Water distilled from a Capon, which is possessed of none, or at least a very small restorative Virtue." In *Lenery's Pharmacop.* the Proportion of these Species for Distillation is, indeed, somewhat varied, and an Addition of Crums of Bread made: But the Water does not seem to derive any Excellence from that, or to be rendered less subject to *Zwelfer's* Censure. The Fat of the Capon, when recent, and not rancid, is proper both for internal and external Purposes, where pinguious, emollient, and lenitive Substances are indicated. Some arthritic Patients make a Cock or Capon lie in Bed at their Feet, with an Intention, by that means, to communicate the Disorder to the poor Animal. *Boecler. Cynosura Mat. Med.* They may possibly be of Service in this Case, by cherishing the Part affected with their Heat. Whether Beans, macerated in Capons Blood before they are sown, are, by that means, rendered Proof against the Injuries of Herbs that have an Antipathy to them, as the Antients thought, according to *Palladius R. R. L. 12. Tit. 1.* is a Point we leave to be determined by Experience. *Rieger.*

CAPOLLIN *Mexicanorum Hernandez, seu Cerasus dulcis Indica.*

It is a Tree of a moderate Bigness, with Leaves like those of an Almond, or our Country Cherry-tree. The Flowers hang down in Bunches, which are succeeded by Fruit, which resembles our Cherries in Shape, Colour, Bigness, Stones, and Kernels; and are also somewhat acid and astringent, when green, but sweet, and very grateful to the Taste, when ripe. It blossoms in the Spring, and bears Fruit all the Summer. It requires a temperate Climate, and grows in Gardens and Fields in *Mexico*, as well spontaneously, as by Cultivation.

The Juice of the young Buds mollifies the Tongue when parched with Heat, the Decoction of the Bark being expos'd to the Sun fifteen Days, and the Weight of a Dram of it, taken, cures the Dysentery. The Powder helps Inflammations. In a time of Dearth they make Bread and Drink of the

the Fruit; but it affords an Aliment inclining to Melancholy; and the frequent Use of it causes a Rankness of Breath, and makes the Teeth black, which, however, may be remedied by Dentifrices. There are three Species of this Tree; which differ only in Fruit; for the *Xitoma Capellin* bears a Fruit about the Bigness of a *Damascen Plum*, the *Helocapollin* one somewhat less, and the *Tolacapollin* the least; but all of them hanging in Clusters. *Raii Hist. Plant.*

CAPOTES. The same as *Cydonia exotica*, C. B. which see. *Raii Index.*

CAPPARIS, Offic. *Κάπραις*, Dioscoridis. *Capparis rotundiore folio*, Ger. 748. Emac. 895. *Capparis spinosa, folio rotundo*, Park. Theat. 1023. *Raii Hist.* 2. 1629. *Capparis spinosa, fructu minore, folio rotundo*, C. B. Pin. 480. *Jonsf. Dendr.* 274. *Tourn. Inst.* 261. *Elem. Bot.* 228. *Boerh. Ind.* A. 2. 71. *Capparis spinosa*, J. B. 2. 63. Chab. 110. CAPERS.

This is a Bush, having many running trailing Branches, full of sharp crooked Thorns, growing at the Joints, with the Leaves, which are set in an alternate Order on the Branches, about an Inch long, and as much broad, a little pointed at the Ends, on short foot-stalks. The Flowers grow among these, on pretty long Stalks, consisting of four red Leaves, full of curl'd Apices in the Middle; and are succeeded by long roundish Fruit, containing a great Number of small Seeds.

The *Caper* Bush grows in the Southern Parts of *France*, and in *Italy*, in sandy and stony Places.

Pliny, in the fifteenth Chapter of the twentieth Book of his *Natural History*, delivers the Sentiments of the Antients, with respect to the Use of this Plant, in the following Words:

" 'Tis reported, that those who eat it daily are in no Danger of being seiz'd with the Palsy, or Pains of the Spleen. Its Root, when bruised, removes the white Leprosy, if the Patient is rubb'd with it in the Heat of the Sun. Two Drams of the Bark of its Root, drank in Wine, make a Medicine beneficial to splenetic Patients, provided they abstain from the Use of Baths. 'Tis also reported, that, by the Bark of the Root, the whole Spleen may be discharged by Urine and Stool, in the Space of thirty-five Days. It is drank in Pains of the Loins, and Palsies. A Decoction of its tritured Seeds in Vinegar, or its Roots chew'd, relieve the Tooth-ach. A Decoction of its Seeds, in Oil, is instil'd into the Ear, for Pains of that Part. Its recent Leaves and Root, made up with Honey, cure phagedenic Ulcers; and the Root, when boil'd in Water, discusses strumous Swellings, cures a Parotis, and expels Worms: It also removes Disorders of the Liver. It is also used against scald Heads, with Vinegar and Honey. A Decoction of it, in Vinegar, cures Exulcerations of the Mouth; but it is agreed upon, by Authors, that it is prejudicial to the Stomach." To this Account of *Pliny's*, we shall add that given by *Dioscorides*, in the 204th Chapter of his second Book. "The Trunk and Fruit are pickled for Food. They produce Commotions in the Belly, are prejudicial to the Stomach, and create Thirst; however, they agree better with the Stomach when boiled, than when crude. Two Drams of the Fruit, drank in Wine for forty Days successively, consume the Spleen, and occasion a Discharge of Urine, and bloody Excrements. It is drank with Advantage in sciatic Pains, Palsies, Ruptures of the muscular Parts, and Convulsions. It also provokes the Menfes, and purges the Head. A Decoction of its Seeds, in Vinegar, relieves the Tooth-ach, if the Mouth is wash'd therewith. The dried Bark of the Root is beneficial in the same Case, and deterges all old sordid and callous Ulcers: It is used, in Conjunction with Barley-meal, for anointing those who labour under Disorders of the Spleen." *Hippocrates*, in his third Book *de Morbis*, recommends the Bark of the Caper-tree Root, mix'd with proper abstergent Potions, as a Medicine adapted to promote the Expectoration of Matter in peripneumonic Patients. According to *Simeon Sethi*, "Capers are possess'd of different Qualities; such as Bitterness, by which they absterge, cleanse, and incise; Acridness, by which they heat, dissipate, and attenuate; and Acidity, by which they inspissate, and prove astringent: For this Reason they are beneficial in Hardnesses of the Spleen, whether they are eaten, or applied, by way of Plaster, with Vinegar or Oxymel. They provoke the Menfes, and allay the Tooth-ach when boiled either in Wine or Vinegar. The Bark is the most efficacious Part of the Plant: The Trunk and Fruit are less powerful in their Operation. They soften scrophulous Tumors, and their Juice kills Worms ingender'd in the Ears. Capers, pickled with Vinegar, open Obstructions of the Liver and Spleen. By a Quality peculiar to themselves, they are beneficial in Disorders of the Spleen, and sciatic Pains; but are hurtful to the Bladder and Kidneys." From what has been said, 'tis obvious that the Antients were acquainted with the aperient Nature of its Root, and also of its corroborating Quality, in consequence of its Astringency. But it is carrying the thing too far, to assert that its Energy is so great as to consume and carry the whole Spleen out of the

Body. In consequence of its Bitterness, it seems well calculated to destroy Worms. Besides, that it is to prejudicial to the Stomach, the Kidneys, and the Bladder, does not appear from the Capers in Use among the Moderns; for what *Panlus Aegineta* says of them, *Lib. 1. Cap. 74.* seems rather to be true. "The Caper, says he, procures an Appetite, opens the Passages of the Liver and Spleen, and subdues Phlegm; but it is to be used before Meals, with Oxymel, or with Oil and Vinegar." The Author here means the green Flowers, pickled before they blow, and which are commonly sold in the Oil-shops. They gather the full-grown Buds of the Flowers before they blow, and leave them spread in a Shade for three, four, or five Hours, till they begin to grow flaccid, in order to prevent their Opening. Then they put them in a Vessel, add Vinegar to them, cover the Vessel with a Board, and let them remain in that State for eight Days: Then, taking them out of the Vessel, they squeeze them gently; and, adding fresh Vinegar, let them stand in that Condition for eight Days more. This Operation they repeat a third time, gently pressing the Capers, and adding fresh Vinegar. This done, they are put into a Cask with Vinegar; to which some add Salt.

The least are by some thought the best, and those brought from *Genoa* are generally prefer'd to the other Kinds. But *Pomet* and *Savary* assert, that they are rarely imported into the Northern Countries from any other Part than *France*, under such Names as may best please the Purchasers. Those brought to *Venice* from *Alexandria*, tho' larger than the *Italian* Capers, are esteemed the best of all others; and, according to *Hoffman de Medicamentis Officialibus, Lib. 2. C. 47.* the largest are the best, as being the most entire. Their austere bitterish Taste sufficiently convinces us of their astringent and corroborating Virtues; and, if we consider the Qualities they derive from the Vinegar and Salt, we may easily conceive, that they are of a resolvent and incising Nature: For this Reason they are recommended as Pickles with Food, in order to strengthen a languid Appetite; and are principally beneficial to those whose Stomachs abound with gross pituitous Humours, who have weak Stomachs, and want a due Appetite. They are also good for Obstructions of the Viscera, especially those of the Spleen, for the Palsy, and Convulsions arising from a Superfluity of peccant Humours. They are also highly recommended in long and chronical Fevers. *Prosp. Alpin. Hist. Nat.*

Laurentius Joubert, in the Plague, recommends them season'd with Salt, gently boil'd in Water, and eaten with Vinegar; "for, says he, they excite an Appetite, and open Obstructions, if there are any in the Body." For this Reason they ought not only to be allow'd in pestilential Cases, but also recommended, because they resist Putrefaction. *Benvenius de abditis Morborum Causis, Cap. 105.* informs us, that he cured a Patient, labouring under Disorders of the Spleen, only by the Use of Capers, ordering him to drink Forge-water for a Year; after he had been harass'd with his Distemper for seven Years, consulted many Physicians, and tried many Remedies, to no Purpose. "Externally, says *Ettmuller*, the Pickle of Capers is applied to the Side, under the Left Hypochondrium, with Linen Cloths, or a Sponge, for discussing Swellings of the Spleen. If, to this, Mustard-seed is added, that the Vinegar may be impregnated with its volatile Salt, it is an excellent Remedy in Disorders of the Spleen." In some Places of *Holland* and *Germany* the Buds of the Flowers of the *Cytisogenista Scoparia vulgaris, flore luteo*, pickled in Vinegar and Salt, are substituted in the room of Capers; nor are they less agreeable to the Palate, or less proper for exciting a languid Appetite, opening Obstructions of the Liver and Spleen, and killing Worms. *Hoffman*, according to *Konigin*, asserts, that the round Buds of the *Galtha Palustris* may be very properly substituted in the room of Capers. The Root of the Caper-tree is one of the five lesser opening Roots. But, in a particular manner, the Bark of the Root, brought from *Egypt* and *Apulia*, dried in small Tubes like the Cinnamon, but shorter, and rough, thick, of a cineritious Colour, and of an austere bitterish Taste, is celebrated for its aperient and subastringent Virtues; for which Reason it is class'd among the Splenetic Medicines, and used in Decoctions for Disorders of the Spleen. This Bark is also used in Splenetic Plaisters, according to *Bauhine*. *Bayrus* took Caper-roots, and boiled them, in Asses Milk, to a Consumption of the third Part of the Milk, with which he anointed the Hairs of the Head over Night, which, when comb'd, become black by that means. Simple Oil of Capers, obtain'd by boiling the Bark of the Root in Olive-oil, is, by *Ettmuller*, recommended for external Use in Disorders of the Spleen. The Method of using it is to anoint the Left Hypochondrium with it. The *Emplastrum de Cicut*, generally used in Tumors of the Spleen, is sometimes moisten'd with this Oil: But in its room the Oil of Amber may be substituted, as being of a more penetrating Nature. In some Dissensatories there is an *Ulcum Capparium Compositum*, prepared of the Bark of the Root, with an Addition of some aperient Powder, sprinkled with Vinegar, and boil'd in Oil of Olives. Some also add Wine. *Joannes Du Bois de Méthode medic. Remed. toxic.*

topic. In the *Pharmacopæia Parisiensis* the Vinegar is omitted, and, in its room, Capers pickled with Vinegar, and White-wine, are substituted. It is an ancient Custom, tho' we know not the Author of it, to anoint the Hypochondria of People afflicted with hypochondriac Disorders and Inflations, with Oil of Capers, which is possess'd of an attenuating and gently corroborating Quality. *Schulzii Prælectiones de Viribus Medicamentorum.* In *Lemery's Pharmacop.* this Oil has more Ingredients than it is commonly prepared with; but the Composition may possibly not have a great deal added to its Efficacy by that means. *Zwelfer*, in the *Pharmacop. Regia*, in order to render the Composition more effectual, to the other Aperients adds Sal Ammoniac, Tobacco, Camphire, and distil'd Oil of Gum Ammoniac; and thinks, that, in order to heighten the Virtues of the Medicine, the distil'd Oils of Soot and Tobacco may be added. The *Trochisci de Capparibus*, of *Mesue*, are prepared of the Bark of the Root, and several aperient Powders, triturated very fine, and made up with Gum Ammoniac dissolved in Vinegar. *Mesue* recommends this Preparation for removing Hardnesses, and dispelling Flatulencies of the Spleen. He orders a Dram and an half of it to be given for a Dose, with Wine, in which Caper-tree Root, the Bark of the Ash, the Bark of Willows, and that of the Tamarisk, or the Points of its Branches, have been boiled. Upon which *Jacobus Sylvius* observes, that the Willow bark is ill calculated for answering the Intention, because it is astringent. *Mesue de Re medica.* The *Extractum Capparium*, in the *Dispensatorium Hafniense*, is prepared of the Roots and common Water, with an Addition of little or no Spirit of Wine.

CAPRA ALPINA, Offic. *Capra Alpina sive Rubicapra*, Schrod. 5. 276. *Rupicapra*, Bellon. Obs. Ed. Clus. 57. Jons. de Quad. 52. Gesn. de Quad. 292. Charlt. Exer. 9. Raii Synop. A. 78. *Dorcus sive Rupicapra*, Aldrov. de Quad. Bisul. 725. **THE CHAMOIS**, or **GEMS**.

It is frequently met with among the *Alps* belonging to Switzerland, and the Country of the *Grisons*, being a sort of wild Goat, in Shape and Size resembling the tame one, with short Horns, the Extremities of which are hook'd.

The Parts used in Medicine are the Blood, Fat, Liver, Gall, Dung, and the Stone found in his Stomach, call'd *Ægagropila*, and *Bezoar Germanicum*. See *ÆGAGROPILA*, and *BEZOAR*.

The fresh Blood is a Cure for the Vertigo; the Fat is good for the Phthisis, and Exulceration of the Lungs; the Liver stops a Looseness; the Gall clears the Eye of an Albugo, and helps a Nyctalops (*an Affection of the Eyes, which causes the Patient not to see in the Night, tho' some take the Word in a contrary Sense.* See *NYCTALOPS*); the Dung wastes and expels the Stone: And the *Ægagropila*, or *Bezoar*, besides its Virtues in almost all manner of malignant Diseases, is thought to procure an easy Delivery. *Dale*.

CAPREOLARIS, *sive Hederarius Anfractus*, κισσουλῆς, ἐλαιοειδὴς, is the Connection of spermatie Veins and Arteries, which descend to the Testicles, not by a strait Passage, but winding and twisting about in manner of the Tendrils of a Vine or Ivy. *Galen de Semine, Lib. 1. Cap. 12.*

The other Names for it are *Vasa præparantia*, *Corpus varicosum*, *pampiniforme*, and *pyramidale*. *Castellus*.

CAPREOLATA, *Bryonia nigra folio Brasiliensis tricoeca*, Merg.

It creeps and twines about other Plants: The Leaves stand on Pedicles two, three, or four Fingers Breadth in Length, and are shaped like a Heart. The Flowers grow on Pedicles two or three Fingers Breadth in Length, which, in the upper Part, are branched into four or five Divisions, each bearing a Flower. The Flowers resemble those of the Smilax, are white, but mix'd with a faint Purple on the outer Half.

In the midst of the Flower stands up a white purplish Stamen, and on its interior Circle is a lively Representation of a Star with five Rays, as tho' impress'd, and of a white Colour like the Flower itself. The Flowers are succeeded by a dark-colour'd, roundish, triquetrous Body, divided into three Capsules, in each of which is a brown Seed, of the Shape and Size of an ordinary Pea, unequally cut. The Flower is without Smell, and the Plant insipid. *Raii Hist. Plant.*

CAPREOLUS, or **CLAVICULA**, in Botany, is that long smooth Production in Plants which is like a String, and grows out of the Stalk. It consists of rough Vesicles, and Bundles of small Fibres, of an elegant and orderly Contexture, and is the Instrument with which some Plants of weak Stalks are furnish'd, that they may not creep on the Ground, but use it to lay hold of, and by that means twine themselves about the neighbouring Plants. *Varro, R. R. l. 1. c. 31.* describing the *Capreolus* of a Vine, says, it is a little curled Tendril, which, in order to lay hold of the neighbouring Vines, creeps along, *ad capiendum Locum*, as it were, to chuse a Place; whence it is called *Capreolus a capiundo*. Wonderful is the Nature of the *Capreolus* produced by the *Vitis Canadensis quinquefolia Tournefortii*, whose extreme Part ends in a Cotyledon, consisting of a Multitude of Papille, from whence issues a Resin, which serves as a Glue to fasten the Vine to the Wall.

In some Plants, as in Ivy, the *Capreolus* is not only assistant to the Plant in climbing, but serves instead of a Root; whence such Plants are called *scandent*. *Rieger*.

CAPREOLUS, in Anatomy, is the *Helix*, or exterior Compass of the Ear, so call'd because of its Tortuosity. *Castellus*.

CAPREOLUS, in Zoology, is an Animal thus distinguish'd.

Capreolus, Offic. Schrod. 5. 278. Schw. de Quad. 78. Mer. Pin. 166. *Caprea Plinii*, Jons. de Quad. 54. *Caprea Plinii*, *Capreolus*, Aldrov. de Quad. Bisul. 738. Raii Synop. A. 89. *Caprea sive Capreolus*, Gesn. de Quad. 296. *Dorcus*, *Capreolus*, Charlt. Exer. 12. **THE ROE-BUCK**.

It is found in Scotland. The Parts used in Medicine are the Rennet, Liver, Gall, and Dung: The Rennet is good for a Diarrhœa and Dysentery; the Liver is supposed to sharpen the Sight, and stops an Hæmorrhage, especially at the Nostrils; the Gall clears the Face of Spots, the Eyes of Albugines, Films, or other Defects, helps the Ringing in the Ears, and mitigates the Tooth-ach: The Dung cures the yellow Jaundice. *Dale*, from *Schroder*.

CAPRICALCA, *Jonston*. A Kind of wild Goose, or Bird, a little bigger than a Raven, of a black or leaden Colour, but cross'd over the Neck, Breast, and Belly, with broad obscure Stripes. Its Tail is very short and black. It makes a Noise in flying, lives in Fens, and is excellent Food.

Its Fat is emollient, and very resolvent. *Lemery des Drogues*.

CAPRICERVA. A Name for two different Species of Animals in the *East* and *West-Indies*, whence two Kinds of Bezoar are taken. It is so called from its resembling partly a Goat, and partly a Stag. See *BEZOAR*.

CAPRICORNUS, Lead. *Rulandus*.

CAPRIFICUS, Offic. Ger. 1327. Emac. 1510. Aldrov. Dendr. 432. Park. Theat. 1493. J. B. 1. 134. *Ficus sylvestris Dioscoridi*, C. B. Pin. 457. Raii Hist. 2. 1433. *Ficus sylvestris sive Caprificus*, Jons. Dendr. 47. **THE WILD FIG-TREE**.

It grows in Greece, and other warm Countries. The Fruit is used in Medicine, and agrees in Virtues with that of the Garden Fig-tree. See *FICUS*.

CAPRIFOLIUM, *Periclymenum*, *Matrifylva*, Offic. Mont. Ind. 39. *Caprifolium*, Ind. Med. 26. *Caprifolium Germanicum*, Tourn. Inst. 608. Elem. Bot. 480. Boerh. Ind. A. 2. 226. Raii Synop. 3. 458. Dill. Cat. Giss. 109. *Periclymenum*, Ger. 743. Emac. 891. Merc. Bot. 1. 58. Phyt. Brit. 90. Mer. Pin. 92. *Periclymenum vulgare Germanicum*, Rupp. Flor. Jen. *Periclymenum non perfoliatum Germanicum*, C. B. Pin. 302. *Periclymenum non perfoliatum*, J. B. 2. 104. *Periclymenum sive Caprifolium vulgare*, Park. Theat. 1460. Raii Hist. 2. 1490. *Clymenum*, *Periclymenum*, *Caprifolium*, Chab. 113. **HONEYSUCKLE**, or **WOOD-BIND**.

The Trunk or Body of this Tree or Bush is seldom much thicker than the Wrist, shooting out long, twining, slender Stalks, which twist about any thing they meet with; the Leaves grow together at the Joint, of a long round Form, pointed at the End, of a bluish-green Colour: The Flowers are made of several long slender Tubes set together, open at Top, with broad Lips, turn'd back with several Stamina in the Middle, of a pale-red Colour, and of a most pleasant grateful Scent, succeeded by small round red Berries. It grows every-where in the Hedges, flowering good Part of the Summer.

The Leaves, which are the only Part used, are sometimes put into Gargarisms for sore Throats; tho' others affirm, they are not so proper for that Purpose, by reason of their great Heat. Some commend a Decoction of them for a Cough and Asthma, and to open Obstructions of the Liver and Spleen. The Oil, made by Infusion of the Flowers, is accounted healing and warming, and good for the Cramp, and Convulsions of the Nerves. *Miller's Bot. Off.*

Its Leaves are insipid, styptic, stink like a Dog-kennel, and give a faint-red Colour to blue Paper: The Roots give it a deeper. Their Bark is acrid, saltish, styptic, and stinking: Its Salt resembles Sal Ammoniac, but is united with some fetid Oil and Earth. The Decoction of *Honeysuckle* Leaves is vulnerary and deterfive, good for Diseases of the Throat, and Wounds of the Legs. The bruised Leaves cure Diseases of the Skin: The distil'd Water of the Flowers allways Inflammations of the Eyes, and strengthens Women in Labour. Three Ounces of it are given to drink, mix'd with one Ounce of Orange-flower Water. *Rondeletius*, on these Occasions, prescribed the Water of *Honeysuckle*, with Lavender seed. *Martyn's Tournefort*.

CAPRIMULGA. A large Species of Viper, not poisonous. *Castellus*.

CAPRIZANS, *σφαδίζων*. So *Herophilus* call'd a sort of irregular and unequal Pulse, when the Motion of the Artery is, as it were, disturb'd and interrupted; but is soon renew'd with more Swiftness and Vehemence, after the manner of Goats, who seem, in their Leaping, to make a double Motion. *Galen de Diff. Puls. Lib. 1. Cap. 29.*

CAPSA, καψα, (καψα, *Dioscorid. Lib. 3. Cap. 26.*) in general signifies a Receptacle for Books, Cloaths, Eatables, or any Portables; in *Rulandus* and *Johnson*, it means something whose Bottom is a Contexture of Iron Wire.

CAPSELLA. A Name in *Marcellus Empiricus, Cap. 20.* for *Echus*, that is *Echium*, or Vipers Bugloss.

CAPSICUM, *Piper Indicum*, Offic. *Capsicum vulgare*, Elem. Bot. 127. *Capsicum siliquis longis propendentibus*, Rupp. Flor. Jen. 37. Tourn. Inst. 152. Boerh. Ind. A. 2. 68. *Capsicum longioribus siliquis*, Ger. 292: Emac. 364. *Capsicum majus vulgatius, oblongis siliquis*, THE MOST ORDINARY GUINEA PEPPER WITH LONG HUSKS. Park. Theat. 355. *Piper Indicum vulgatissimum*, C. B. Pin. 102. Raii Hist. 1. 676. *Piper, Capsicum*, Chab. 297. *Piper Calecuticum, five Capsicum oblongius*, J. B. 2. 943. *Solanum Capsicum dictum vulgatissimum*, Hort. Lugd. Bat. 574. *Solanum urens Capsicum dictum, five Piper Indicum vulgatissimum*, Hist. Oxon. 3. 528. *Piper Indicum, siliqua flavâ vel aurâ*, Comm. Flor. Mal. 215. *Capo-Molago*, Hort. Mal. 2. 109. *Quiya, five Piper Brasiliense*, Pil. 225. *Quiya Brasiliensis*, Marcg. 39. *Lada Chilli*, Bont. 131. *Chilli, Piper siliquo-sum Mexicanum*, Hern. 135. **GUINEA PEPPER**.

The Stalks of *Guinea Pepper* grow to be about a Foot and a half high, thick and angular, on which are set Leaves of a full green Colour, in Shape like the Leaves of Nightshade, but longer and narrower. The Flowers grow single, at the Division of the Stalks, of one Leaf divided into five Parts, white and Star-fashion, with a yellow Umbo in the middle, bigger than Nightshade-flowers. After these are fallen, come long, round, taper Pods, of a green Colour at first, but, when ripe, of a lively, shining Red, like polish'd Coral, in which are contain'd a great many flat, round, yellow Seeds. This Fruit is of a hot, fiery, biting Taste, hotter than the strongest Pepper.

It is sown every Year in Gardens, and flowers in *August*, producing its red Pods towards the latter End of *September* and *October*, perishing with the first Frosts.

Guinea Pepper is more used as a Sauce, and in Pickle, than in Physic, being frequently put into Fish Sauce, or into any thing that is flatulent and windy, being order'd divers ways, either green or ripe, pickled or rubb'd to Powder with Salt. A Decoction of it, with *Peny-royal*, is commended by some to expel a dead Child. The Skins boiled, and used as a Gargle, help the Tooth-ach. A Cataplasm of the Seeds powder'd, and mixed with Honey, apply'd to the Throat, is good for the Quinsy. It is not much used. *Miller's Bot. Off.*

CAPSULA, properly a Box, or any Receptacle of that kind, in Botany, is the seminal Vessel, or Repository, in which are inclosed one or more Seeds, such as you see in siliquous or Pod-bearing Plants, whose Pods, from the Number of their Capsules or Cells, are called Unicapsular, Bicapsular, and so on. *Rieger.*

CAPSULA CORDIS is the same as **PERICARDIUM**, which see. *Blancard.*

CAPSULA COMMUNIS, *Glissonii*, is a Production of the Peritonæum, including the Vena Porta and biliary Duct in the Liver. *Blancard.*

CAPSULÆ ATRABILARIÆ, *Glandulæ suprarenales, Renes succenturiati*, are glandulous Bodies lying on the upper Part of the Kidneys. See **RENES SUCCENTURIATI**.

CAPSULÆ SEMINALES are the extreme Parts of the *Vasa deferentia*, which have their Cavities dilated in manner of Capsules. Their Use is to transmit the Semen from the Testes to the *Vesiculæ seminales*. *Blancard.*

CAPSULATE Pods [from *Capsa*, a Chest] are the little short Seed-vessels of Plants. *Miller's Dictionary.*

CAPSULATED, is inclosed in any thing as a Walnut is in its green Husk. *Miller's Dictionary.*

CAPULUM, from καπνίω, to bend; a Contorsion of the Eyelids, or other Parts. *Blancard.*

CAPUR. The same as **CAMPHORA**.

CAPUS. The same as **CAPO**.

CAPUT, in Botany, imports the Head of a Plant. See **CAPITA**, and **CAPITATA**.

CAPUT GALLINACEUM. The same as **ONOBRYCHIS**, which see.

CAPUT MONACHI. A Name for the **TARAXACUM**, which see.

CAPUT MORTUUM, called otherwise *Terra Mortua*, or *Terra damnata*, in Chymistry, imports the dry Fæces left in a Vessel, after the Moisture has been distilled from it.

CAPUT. The Head.

The Antients divided the Body into three great Cavities, which they term'd *Bellies*, and into four Extremities. They called the Head the upper *Belly*, the Thorax the middle *Belly*, and the Abdomen the lower *Belly*. The Neck was by some joined to the Head, by others, to the Thorax.

The most natural and plainest Division of the Body is into the Head, Neck, Thorax, Abdomen, Arms, and Legs.

The Head view'd on the Outside is divided into the hairy Scalp, and Face.

The hairy Scalp covers the upper Part of the Os Frontis, the Os Parietalia, the Os Occipitis, and the upper and lower Portions of the Temporal Bones.

The uppermost Part of the hairy Scalp is termed the Vertex or Fontanella; the back Part, Occiput; the lateral Part, the Temples. The Vertex is distinguished from the Occiput by a contorted Border of Hair, and the Temples are terminated below by the Ears.

For the Arteries of the Face, see **ARTERIA**.

For the Veins, see **VENA**.

For the Nerves, see **NERVUS**.

The Face comprehends all that Portion of the Surface of the Head which lies between the hairy Scalp, and the Neck, that is, the Forehead, Eye-brows, Palpebræ, Eyes, Nose, Mouth, Chin, Cheeks, and Ears.

The external Parts of the Eyes are these, the anterior Portion of the Globe of the Eye, the Membrana Conjunctiva, the Cornea Lucida, Iris, Pupilla, Caruncula Lachrymalis, Angles of the Palpebræ, and the Cilia, or Hairs of each Palpebra. The internal Parts are, the Globe of the Eye, the Tunica Sclerotica, or Cornea Opaca, the Choroides and Arachnoides; the Crystalline, vitreous and aqueous Humours; the anterior and posterior Chambers; the Muscles, and the optic Nerve. See **OCULUS**.

For the Parts of the Ear, see **AURIS**.

The external Parts of the Nose are these; the upper Extremity of the Nose, the Arch or Back, the Sides of that Arch, the Tip of the Nose, the Alæ, the Nares, and the Septum Narium. The internal Parts are, the Cavity and Bottom of the Nares, the Convolutions, the maxillary, sphenoidal, and frontal Sinuses.

The external Parts of the Mouth are these; the Lips, one upper, the other lower, the Angles or Commissures of the Lips, the Border or Edge of each Lip, the Fossula which runs from the Septum Narium to the Edge of the upper Lip, and the transverse Fold which separates the under Lip from the Chin. See **LABIA**.

The internal Parts of the Mouth are these; the Palate, the Septum Palati, the Uvula, the Amygdalæ, Gums, Frenum of the Lips, the Tongue, its Apex, Root, Sides, and Frænum.

The Cheeks are the lateral Parts of the Face, reaching downward from the Eyes and Temples, between the Nose and Ears. The upper prominent Part of the Cheek is commonly termed *Mala*.

The Chin is the anterior Protuberance, by which the lower Part of the Face is terminated, from whence it runs all the Way to the Neck. The under Part of the Chin is termed the Basis, and it is distinguish'd from the Throat by a transverse Fold, which reaches from Ear to Ear. In the middle of the Chin there is sometimes a Fossula, Depression, or Dimple.

The Coverings of the Head are, first, the Hair. See **CAPILLUS**.

Secondly, The Skin. See **CUTIS**, and **CUTICULA**.

Thirdly, The Membrana Cellulosa. See **CELLULOSA MEMBRANA**.

Fourthly, The Muscles. See **MUSCULUS**.

Besides the external Integuments of the Head, there is an Aponeurotic Expansion which covers the Head like a Cap, and is spread round the Neck, and on the Shoulders, like a Riding-hood; and for this Reason *Winslow* gives it in general the Name of *Coiff*, and calls the superior Portion of it the Aponeurotic Cap.

This Aponeurosis is very strong on the Head, and it appears to be made up at least of two Strata of Fibres crossing each other. As it is spread on the Neck, it becomes gradually thinner, and ends insensibly on the Clavicles. It sends out a Production on each Side, from above downward, and from without inward, which, having passed over the superior Extremity of the Musculus Mastoideus, runs behind that Muscle toward the transverse Apophyses of the Vertebra of the Neck, where it communicates with the Ligamenta Intertransversalia.

The external Surface of all the Bones of the Head, as well as of all the other Bones of the human Body, except the Teeth, is cover'd by a particular Membrane, of which that Portion which particularly invests the Cranium is named Pericranium, and that which invests the Bones of the Face is simply term'd Periosteum.

The Pericranium is made up of two Laminae closely united together. The internal Lamina, which has by some been taken for a particular Periosteum, covers immediately all the bony Parts of this Region; and the external Lamina has been looked upon as a Membrane distinct from the internal, and named Pericranium particularly.

The external Lamina of the Pericranium parts from the other, at the semicircular or semioval Plane, surrounding the Temples, and becomes a very strong Aponeurotic or Ligamentary Expansion, which covers the temporal Muscle, and is afterwards fixed in the external angular Apophysis of the Os Frontis,

Frontis, in the posterior Edge of the superior Apophysis of the Os Male, and in the superior Edge of all the Zygomatic Arch, as far as the Root or Basis of the Mastoide Apophysis.

In the Interstice between the two Laminæ at this Place, lies a large Portion of the Temporal Muscle, being inserted in each Lamina in the manner mention'd below under this Article. The rest which is not attach'd to this Muscle, is filled by a reticular and adipose Substance, in the Interval betwixt the inferior Portion of the temporal Muscle, and the Zygomatic Arch.

At this Place, the Aponeurotic Coif seems to join the external Lamina of the Pericranium, and they both communicate with particular Aponeurotic Expansions of the neighbouring Muscles, as the Mastoideus, Masseter, Zygomaticus, &c.

The Head is composed of several bony Pieces, some of which, connected together, form a kind of oval Cavity, properly called the Skull. The other represent a complicated Piece of Sculpture, which partly supports the anterior Half of the Skull, and, as it forms the greatest Part of the Face, it is call'd by that Name.

Before we examine particularly each Bone of the Head, it is necessary, in order to prevent Repetitions and Obscurity, to consider the Head in general, that is, as consisting of all the Bones which belong to it. In this View, several Eminences and Cavities come to be taken Notice of, the Formation of which is owing to more Bones than one; and consequently, in examining each Bone by itself, we can see but an imperfect Portion of them.

In the Language of Anatomists, these Parts may be called common, and those that belong to some one Bone, may be term'd proper. The common Parts ought first to be distinctly known, before we go on to the proper ones; if we would shun an Inconvenience otherwise inevitable, of explaining one unknown thing by another equally unknown.

The bony Head being consider'd as one Piece, the following Particulars may be taken Notice of in it. 1. Its Situation in general. 2. The Size. 3. The Figure. 4. The external Parts. 5. The internal Structure. 6. Its Situation in particular. 7. The Connection. 8. The Uses. I shall follow the same Order nearly, through the Whole of this Exposition.

The Head is the highest or most superior Part of the whole Skeleton.

The whole Head of the Skeleton is Spheroidal, composed, as it were, of two Ovals, a little depressed on each Side. One of them is superior, the Extremities pointing forward and backward; the other is anterior, the Extremities being turn'd upward and downward in such a manner, as that one Extremity of each Oval meets and is lost in the other, at the Place particularly known by the Name of the Forehead.

This complex Figure, being view'd sidewise, represents a Spheroidal Triangle; and we ought farther to observe, that the Oval of the Skull is broader behind than before, and that of the Face broader above than below.

The upper Region is term'd the Crown of the Head, the lower the Basis; the lateral Regions, the Temples, the Anterior, the Forehead, the Posterior, the Occiput, the lower Part of which is called the Nape of the Neck.

Some of the Eminencies, Cavities, and Inequalities are external, being visible in an entire Head; others are internal, and can only be discover'd by opening the Skull. Both these Kinds are either proper, belonging only to some one Piece; or common to more Pieces than one.

The external Eminences are ten in Number, two Mastoide, two Styloide, two Condylloide, two Pterygoide, and two Arches called Zygomata. Of these five Pairs, the three first are simple or proper; the other two, that is, the Zygomatic and Pterygoide, are compound or common, being form'd by the Connection of more Bones than one; the Zygomata by the Ossa Temporum, and Ossa Malarum; the Pterygoide Eminences by the Os Sphenoides, and Ossa Palati. To these may be added, the Tubercle and external Spine of the Occiput, and the Condylloide and Coronoid Apophyses of the lower Jaw.

The simple external Cavities are, the Parietal Holes, the Superciliary Holes, in the Place of which there are sometimes only Notches; the superior orbitary Slits, the optic Holes, the external, or rather inferior orbitary Holes, the Holes in the Ossa Nasi, the Holes in the Ossa Malarum, the Maxillary Fossæ, the oval Holes in the Basis of the Skull, the Spinal Holes, the Orifices of the Passage of the internal Carotides, the Mastoide Grooves, the Stylo-mastoide Holes, the posterior Mastoide Holes, the large occipital Hole, the anterior and posterior Condylloide Holes, the Glenoid Cavity and Fissure for the Articulation of the lower Jaw, the external auditory Hole, the small posterior maxillary Holes, the Sockets in both Jaws, the internal and external Orifices of the Canal of the

lower Jaw, which last may likewise be named the Holes of the Chin.

The compound external Cavities are the Orbits, the Edges of which are divided into two lateral Parts, improperly called Angles, one internal toward the Nose, the other external toward the Temples; the temporal Fossæ, the Zygomatic and Nasal Cavities, which last are also called Nostrils, which have anterior and posterior Openings, and are parted by a middle Septum, the Vault of the Palate, the anterior Hole of the Palate, the posterior Holes of the Palate, the Pterygoide Fossæ, the inferior Orbitary, or Spheno-maxillary Slits, the interior orbitary Holes, one anterior, and one posterior, the Nasal or Lachrymal Duct, the Duct of *Eustachius*, called the Tuba Eustachiana, the small Fossæ for the internal jugular Veins, and the Foramina Spheno-palatina, and Lacera.

The internal Eminences are the frontal or coronal Spine, Crista Galli, the Sella Turcica, or Sphenoidalis, the Clinoid Apophyses, Apophyses Petrosæ, the internal occipital Spine, the crucial Tubercle, and two transverse Crests.

Of the internal Cavities, one is simple or proper, the Cavity of the Sella Turcica, called Fossa Pituitaria. The rest are compound, and are eight large Fossæ in the Basis of the Skull, two anterior, two middle; and, on the back Side, two upper, and two lower: The Grooves of the superior Longitudinal, and of the lateral Sinuses, and the Sulci of the Arteries of the Dura Mater.

The external Inequalities are, two large semicircular Planes surrounding the Temples, one on each Side, at which it has been observ'd above that the two Laminæ of the Pericranium separate, the Edge or Circumference of which begins by a Sort of Crista or Spine above the external Angle of the Orbit, and ends in two Arches, one on the fore Side, the other on the back Side of the mastoide Process; two occipital Arches, one superior, the other inferior, which are both divided into two Portions by the occipital Crista or Spine; the external Traces of the Sutures.

The internal Inequalities are the undulated Impressions in the Basis of the Skull; the internal Traces of the Sutures.

The compact or solid Substance of the Bones of the Skull is called Tables, of which one is external, and another internal, called also the vitreous Table, as being more brittle than the former, because it is of a more close Texture.

The spongy or cellulous Substance between the two Tables is called Diploe, the Quantity of which is proportionable to the Thickness of the Bones. In some Places it is wanting, and there the Tables uniting are something transparent, as in the temporal Bones. In the internal Table, there are several Depressions, some of them near a Quarter of an Inch in Depth, which run thro' the Diploe, and even reach the outer Table. These Depressions deserve to be taken Notice of in relation to the Operation of Trepanning.

By the Situation of the Head in particular, I understand the natural Posture of it, when a Man stands, or sits, without inclining his Head either backwards or forwards, to one Side or the other, or drawing it down upon the Neck or Shoulders. Particular regard ought to be had to this Situation in examining the Head, either in general, or in particular; and especially in considering the lower Parts of the Basis of the Skull, and Arch of the Palate.

The common Method of shewing these Parts in a Skull turn'd upside down, has often occasion'd even expert Anatomists to mistake the upper Parts for the lower, and the lower for the upper. It is therefore very necessary for Beginners often to hold the Skeleton of a Head raised in its true Posture, and to view it from below upwards, that they may frame to themselves a just Idea of it.

In order to this, whether the Head be held in our Hands, or set upon any thing, the best Way is to place the two Zygomatic Arches in a Plane exactly parallel to the Horizon. An Head, saw'd down the Middle into two equal lateral Parts, is likewise of great Use in determining the true Situation of the Parts I have mention'd, and of those which lie near them.

The Connection of the Head with the Trunk is by Ginglymus, the Condylloide Processes of the Os Occipitis being receiv'd in the superior Cavities of the first Vertebra of the Neck. The Connection of the particular Bones of the Head with each other is partly by Diarthrosis, as in the Articulation of the lower Jaw; partly by Synarthrosis, which obtains in the Articulation of all the other Bones.

The principal Uses of the Bones of the Head are to contain the Brain, to be the Seat of the Organs of Sensation, and to serve for Mastication, Respiration, and the Formation of the Voice.

The Bones of the SKULL in particular, and first, the Os FRONDIS.

The eight principal Bones of the Skull are usually divided into common and proper. By proper Bones, Anatomists mean those which are wholly employ'd in forming the Globe of the Skull; and of these they reckon six, the Os Frontis,

two

two parietal Bones, the occipital Bone, and two temporal Bones. The common Bones are those which contribute to form the Face, as well as the Skull, which are the Os Ethmoides, and Os Sphenoides.

This Division is not just; for the Os Frontis and Ossa Temporum deserve as much to be call'd common, as the two which are reckon'd so; and thus, instead of six, there would be only three proper Bones, the Ossa Parietalia, and the Os Occipitis; and instead of two, there would be five common ones; the Os Frontis, two temporal Bones, the Os Ethmoides, and Os Sphenoides.

The Os Frontis is situated in the anterior Part of the Skull, and forms that Part of the Face which is call'd the Forehead, from whence it takes its Name.

Its Figure is symmetrical, resembling a large Cockle-shell almost round; so that two frontal Bones of the same Size join'd together, represent this sort of Shell-fish pretty exactly.

Before we speak of the Parts of this Bone, we must take Notice, that though it is always look'd upon as one Bone, it is sometimes to be divided into two equal Parts by a Continuation of the sagittal Suture; and this Division is common to both Sexes equally.

When we consider it as one Bone, it may be divided into an upper Part, which belongs to the Crown of the Head; a lower Part, which belongs to the Basis of the Skull; an anterior Part, which is the Forehead; and two lateral Parts, at which the Temples begin.

It has two Sides, one external, which forms the Forehead, the greater Part of it being convex; and one internal, which is concave in Proportion. By external I here mean what appears when the Skull is entire; and by internal, what cannot be seen till the Skull is open'd.

On the Outside we observe the following Eminences; two superciliary Arches, which form the upper Edges of each Orbit, or the Supercilia; three Risings not always equally apparent, one between the two Arches, and the other two above the Arches, which may be call'd the Knobs of the Forehead; five Apophyses, one at the Extremities of each Arch, one between the Orbits which sustain the Ossa Nasi, and which, in some Subjects, makes a Part of the bony Septum of the Nose. This last Winslow calls the Nasal Apophysis; and the other four, the angular Apophyses.

The external Cavities are these: Two orbitary Arches or Vaults, forming the upper Portions of the Orbits; a remarkable Depression in each of these Vaults, above the external Angle, which contains the lachrymal Gland; a small Depression above the internal Angle, to which is fix'd the cartilaginous Pulley of the great oblique Muscle of the Eye; two Portions of the temporal Fossæ; two little Cristæ, which form the anterior Extremity of the great semicircular Plane of the Temples on each Side, at the Edge of the superciliary Arches, near the external Angle; two superciliary Foramina, which are sometimes double, and sometimes only Notches; and, lastly, two Holes, or Portions of Holes, call'd the internal orbitary Holes.

On the Inside of this Bone we see a sharp perpendicular Eminence, call'd the frontal or coronal Spine, directly opposite to the Middle Rising on the Outside already mentioned. Above this Spine is a Portion of the Groove for the longitudinal Sinus, which, when the Spine is wanting, runs down lower. Below the Spine, a considerable Opening, call'd the Ethmoidal Opening, because it contains the Os Ethmoides; the Sides thereof are always more or less cellular. Between this Opening and the coronal Spine, a blind Hole, which in some Subjects is wholly in the Os Frontis, in others common to that Bone, and to the Os Ethmoides, and which seems to open into the Frontal Sinuses near the Nose. The anterior Fossæ of the Basis of the Skull, which receive the anterior Lobes of the Brain, and which, by jutting out forwards, form the Risings on the Outside already taken Notice of; towards the lower Part they are uneven, answering the Inequalities of the Lobes; and they are also a little rais'd to make Room for the Orbits; Sulci or Furrows for the Arteries of the Dura Mater, and sometimes indeterminate Depressions already mention'd.

This Bone is compos'd, as has been already observ'd in general, of two Tables and a Diploe, except the orbitary Vaults, which are very thin, and without any Diploe. About the Middle of the lower Part of the Bone, where the middle Rising is commonly situated, the two Tables are parted, to form two Cavities, call'd the Frontal or Superciliary Sinuses; and the separated Portions are each of them, in some measure, compos'd of two Tables, or, at least, have two Surfaces, which makes in all four Surfaces or Tables.

The frontal Sinuses are extended on the Edge of the Supercilia, on each Side, more or less, all the Way to the superciliary Perforations: Below they are open, and communicate with the Cells of the Os Cribrosum. They are commonly parted by a bony Partition, which is often more to one Side than to the other, and more or less uneven. Sometimes it is perforated;

and sometimes Part of it, and sometimes the Whole, is wanting.

In different Subjects these Sinuses are observ'd to vary extremely, both with respect of their Extent, which in some is very small; and their Form, which is often very irregular, and cellular. Sometimes they are entirely wanting; and in such Subjects the internal Cavity of the Nose is larger than ordinary. It has likewise sometimes been remark'd, that one of them does not open into the Nose, but only communicates with the other.

To have a just Idea of the true Situation of all the Parts of this Bone, we ought, in examining or demonstrating it, to hold it in the same manner as it is situated in an entire Head, placed as has been already directed. For thus we shall see, that the upper Part of it is a little inclined backward, and that its Circumference or Edges are in an inclined Plane.

The Os Frontis is articulated by Suture with seven other Bones; the Ossa Parietalia, Os Ethmoides, Os Sphenoides, Ossa Lachrymalia, Ossa Nasi, Ossa Maxillaria, and Ossa Malarum.

It contains the anterior Lobes of the Brain, and a Portion of the longitudinal Sinus. It forms the Forehead, the upper Part of the Orbits, and a Portion of the Temples.

OSSA PARIETALIA.

The parietal Bones are two in Number, one on each Side, situated on the superior, lateral, and a little on the posterior, Parts of the Skull.

They are of a larger Extent than any other Bone of the Skull; their Figure is nearly that of an irregular convex Square.

They have each two Sides, one external and convex, the other internal and concave; four Edges, one superior or sagittal, one inferior or temporal, one anterior or frontal, and one posterior or occipital. The superior Edge is the longest, the inferior the shortest, in which there is a very large squamous Slope, which Winslow calls the temporal Slope. The upper and posterior Edges are indented through their whole Length. The anterior Edge is likewise indented, except at the lower Part; all the lower Edge is squamous, except a small Portion next the Os Occipitis.

It has four Angles, one anterior and superior, one anterior and inferior, one posterior and superior, and one posterior and inferior. The anterior and inferior Angle ends in a squamous Production, which, from its Situation, Winslow calls the temporal Angle or Apophysis.

On the Outside, above the temporal Slope, we observe the most considerable Portion of the semicircular Plane of the temporal Muscle. Near the upper Edge, towards the posterior Angle, is a small Hole call'd the parietal Hole, which is sometimes found only in one of the Bones, sometimes in the sagittal Suture, and sometimes it is wanting. In some Bones it goes only to the Diploe; in others, it perforates both Tables.

The Inside is somewhat uneven; and many Furrows are remarkable upon it, answering to the Ramifications of the Artery of the Dura Mater, the Trunk of which is lodg'd sometimes in a Groove, sometimes in a very short perfect Canal running through the Substance of the Bone near the anterior and lower Angle. Near that, another such Canal is sometimes, tho' rarely, met with, for another Artery of the Dura Mater.

Along the upper Edge of this Inside we see one Half of the sagittal Groove for the longitudinal Sinus; and at the posterior and lower Angle, we meet generally with a small Portion of another Groove for the lateral Sinus. Lastly, the same sort of irregular indeterminate Depressions are sometimes observable in this Bone, which we took Notice of in the Os Frontis.

These Bones are the weakest of the eight that compose the Skull. The Diploe is found between the Tables, through the whole Length of the sagittal and occipital Edges, and through the upper Half of the coronal Edge.

To place or demonstrate this Bone in its true Situation, we need only observe what has been said concerning its Edges and Angles, remembering only that the posterior and inferior Angle reaches further down than the anterior.

Each Parietal Bone is join'd to that on the other Side, by the sagittal Suture; to the Os Frontis, by the coronal Suture; to the Os Occipitis, by the lambdoidal Suture; and to the temporal Bones and Os Sphenoides, by the squamous Suture.

Its Connection with the Os Frontis, below the semicircular Plane, is by the squamous Suture; and the same is to be said of its Articulation with the Sphenoidal Bone, as well as with the temporal Bone. The squamous Portions of the Os Frontis are cover'd by those of the Ossa Parietalia; the squamous Slopes in these last are cover'd by the temporal Bones; and the squamous Apophysis of the temporal Bone is cover'd by a Process of the Os Sphenoides.

These Bones contain a large Portion of the Brain, form Part of the Temples, and serve for the Insertion of the temporal Muscles.

The occipital Bone is situated in the posterior and lower Part of the Cranium.

It represents a kind of Lozenge irregularly indented, and yet symmetrical, convex on the Outside, and concave on the other. Sometimes, though very rarely, it is divided into two Pieces by the Continuation of the sagittal Suture.

It consists of an external and internal Side; of the upper, lower, lateral, and middle Parts; of four Edges, two superior, which are indented, and two inferior, which are more or less unequal.

The Outside is convex, near the Middle of which the occipital Protuberance or Rising is observable. Under this Protuberance are two superficial transverse Arches, more remarkable in some Subjects than in others; one superior and largest, the other inferior and least, and both reaching to the Mastoide Process on each Side. The inferior Arch is cut at right Angles by a perpendicular Line, call'd the external occipital Spine or Crista. Under the superior Arch are two rough Planes, one on each Side of the Spine; and between the Extremities of the two Arches are two other such Planes, one on the Right, the other on the Left. We see likewise two Condyles, or condyloide Apophyses, crufted over with Cartilages, a little convex, of an oblong oval Figure, and situated obliquely, their posterior Extremities being at a greater Distance from each other than the anterior; also a large cuneiform Production, which, from the Condyles, is directed upwards, and in Adults is often join'd inseparably to the Os Sphenoides; it may be term'd Apophysis Basilaris, or the great Apophysis of the occipital Bone. Lastly, some unequal Tubercles on the lower Part of this Apophysis, and two little angular Productions in the Edge of the Bone, over against the Condyles.

We are likewise to take Notice of two large Notches under the lateral Angles, which receive the posterior Apophyses of the temporal Bones; two small Notches or Portions of the Jugular Fossæ, and of the Foramina Lacera, each of which is often divided by a small bony Production; the great occipital Hole, on the anterior Edge of which there is an Impression for the Insertion of a Ligament; two anterior and two posterior condyloide Fossula; two anterior condyloide Holes for the ninth Pair of Nerves, which are sometimes double; two posterior condyloide Holes for small Veins, which are sometimes wanting.

The Inside of this Bone is concave, and there we are to take Notice of a crucial Groove, the Edges of which are a little rais'd; the upper Branch contains Part of the great longitudinal Sinus of the Dura Mater; the lateral Branches receive the lateral Sinuses; and the lower Branch is more often a Spine or Crista, than a Groove; it is situated opposite to the external Spine, and may be call'd the internal occipital Spine. It happens often that the Groove for the longitudinal Sinus is more to one Side than the other. We see also the Place where these Grooves cross each other; a considerable Tubercle opposite to the external Protuberance; four Fossæ separated by the four Branches of the crucial Groove, two of which contain the posterior Lobes of the Brain, and the other two the Cerebellum; a very broad Groove in the Apophysis Cuneiformis, for the Medulla Oblongata; two small Portions of Grooves lower down, which complete the Grooves for the lateral Sinuses of the Dura Mater. Along the inner Edge of the large occipital Hole there is a kind of Groove more or less perceivable.

The upper Part of this Bone is very thick, as being much exposed to Blows; the lower Part of it is thin, but well guarded by Muscles. The thickest Part of the whole Bone is at the occipital Protuberance, between which and the Tubercle of the crucial Groove there is a large Quantity of Diploe.

To set the occipital Bone in its true Situation, the great Foramen is to be turn'd downward, and placed horizontally; the Apophysis Cuneiformis forward, and a little rais'd.

This Bone is join'd on the upper Part to the Ossia Parietalia, by the lambdoidal Suture; on the lower and lateral Parts to the temporal Bones, by the Continuation of the lambdoidal Suture; on the lower and anterior Part to the Os Sphenoides, by the Apophysis Cuneiformis, both which in Adults make commonly but one Bone. It is likewise join'd by a kind of Suture to the supernumerary Bones, when there are any such.

The Os Occipitis forms the back Part of the Head; serves for the Articulation of the Head with the Trunk; contains a Part of the Brain, and almost all the Cerebellum; gives Passage to the Medulla Oblongata, and to a great many Vessels and Nerves; and gives Insertion to a great many Muscles.

OS SPHENOIDES.

The sphenoidal Bone is situated in the lower Part of the Cranium a little toward the fore Part, making the middle of the Basis of the Skull, from whence it acquir'd the Name of Os Basilare. It is call'd Sphenoides or Cuneiforme, because it is in a manner wedged in between the other Bones.

It is of a very odd Figure, and yet symmetrical. Its greatest Extent is transverse, and it may, in some measure, be said to represent a Bat, with its Wings spread.

It consists of a great Number of Parts. The posterior and thickest Part, by which it is join'd to the Apophysis of the Os Occipitis, may be call'd its Body. The rest is wholly made up of Eminences and Cavities; and in order to examine these methodically, the Bones must first be divided into two Sides, one external, the greatest Part of which may be seen in an entire Skull; the other internal, which does not appear till the Skull is open'd.

The Eminences on the Outside are these: Two temporal Apophyses, which are the largest of all the Processes of this Bone, and at the greatest Distance from each other, called by *Ingrassias* the great Wings of the Os Sphenoides; and they are sometimes, though very rarely, separated from the rest of the Bone, by transverse Sutures; two orbitary Apophyses, which form a considerable Portion of the Orbit, next the Temples; a small sharp Process shaped like a Bird's Bill, in the middle Space between the two orbitary Apophyses; two pterygoide Apophyses, each of which is divided into two Alæ, one external, which is the largest, the other internal, the lower End of which is in the Shape of a Hook; each Ala is again divided into two Sides, one external, towards the Temples, and one internal, towards the Palate; two spinal Apophyses; a little anterior Eminence above the sharp Process, for the Articulation of this Bone with the Os Ethmoides. In some Subjects, instead of this Eminence there is a little Notch.

The external Cavities are as follow: Two Portions of the temporal Fossæ; two Portions of the orbitary Fossæ; two pterygoide Fossæ, the lower Ends of which are divided by an irregular Notch or Slit, which may be term'd Fissura Palatina; a little oblong Fossula at the Root of the internal Ala; two superior orbitary or sphenoidal Fissures; a little Notch at the End of each Fissure, for the Passage of an Artery of the Dura Mater; two temporal Notches; two maxillary Notches, the Edges of which help to form the inferior orbitary Fissures, which *Winslow* calls Spheno-maxillary Fissures; these Edges are likewise sometimes considerably groov'd; two Holes for the superior maxillary Nerves; two other Holes by the Side of the former, call'd Pterygoide, which in an entire Skull are hid by other Bones; two oval Holes, for the inferior maxillary Nerves; two little round Holes, call'd spinal Holes, each of which transmits an Artery of the Dura Mater; sometimes they are only Notches; another little Hole between the two maxillary Holes; a little Groove on one Side of the spinal Apophysis, which forms Part of the Eustachian Tube.

The internal Eminences are two thin sharp transverse Apophyses, which form the superior orbitary Fissures, call'd by *Ingrassias* the little Wings of the sphenoidal Bone; a little Process in some Subjects, in the middle Space, between these thin Apophyses, for the Articulation with the Os Ethmoides, which, in other Subjects, is a Notch; four Clinoid Apophyses, two anterior, and two posterior, which last are sometimes united in one, and sometimes they run forward all the Way to the anterior Processes, forming a kind of Bridge, under which the internal carotid Artery passes at its last Curvature; this Passage has likewise been found divided in two by a middle bony Septum, besides many other Varieties: one or two small Productions, where the internal Carotid enters the Cranium; two little styloide Processes or Hooks, which, in some Subjects, join the Extremity of the Os Occipitis before the perfect Union of these two Bones.

The internal Cavities are two Portions of the large middle Fossæ of the Basis of the Cranium; two superior orbitary or sphenoidal Fissures; two optic Holes; a small superior orbitary Hole near the End of each sphenoidal Fissure, which is often no more than a Notch; a small Groove at the Extremities of the same Fissures; a Depression between the Clinoid Apophyses, called Sella Sphenoidalis, Sella Turcica, and Fossa Pituitaria. We see likewise almost all the Holes taken Notice of in the Outside; and in particular, that the superior maxillary Hole ought more justly to be call'd a short Canal.

Besides the Cavities hitherto mention'd, there are two very considerable ones, call'd the sphenoidal Sinuses, situated in the thick Portion of this Bone, under the anterior Part of the Sella Turcica, and middle Space between the two optic Holes, reaching as far as the sharp Process or Bill already described; they are commonly divided by a bony Septum, and they open before, on each Side of the sharp Process, just behind the superior Conchæ of the Nose, or Ossia convoluta superiora. Their Figure, Size, Openings, and Septum, vary considerably; sometimes one of them is wanting; sometimes one opens only into the other; sometimes they are both wanting; sometimes there are several Cells without any Septum; and sometimes the Septum is placed more to one Side than to the other.

The Substance of this Bone is compact for the greatest Part, having very little Diploe, and what Diploe there is lies in distinct Parts of the Bone, that is, in the thick Portion behind the

the Sella Turcica, towards the Symphysis with the Occipital Bone, and in the Orbital Apophyses in a small Quantity.

To situate the Sphenoidal Bone right, the Sella Turcica must be turned upward, the sharp Process forward, and the Pterygoide Apophyses downward.

It is articulated with all the other Bones of the Cranium, with the *Ossa Malarum*, *Ossa Maxillaria*, *Ossa Palati*, and Vomer.

The Uses have all been mentioned in the Course of the Description.

OS ETHMOIDES.

The Os Ethmoides is situated internally in the fore Part of the Basis of the Skull.

The Figure of the whole Bone taken together is very particular: it may be said, however, in some measure, to be cubical.

The Divisions of this Bone are perfectly arbitrary; that which *Winslow* makes Choice of is, into a middle and two lateral Portions; in the middle Portion we distinguish three Parts, an upper, middle, and lower.

The upper Part of the middle Portion is an Eminence, call'd *Crista Galli*, which is often solid; sometimes, however, it has been found hollow more or less, and perforated by a small Opening, which communicates with the Frontal Sinuses: A Groove is sometimes found in its anterior Edge, which leads to the Spinal or blind Hole in the Os Frontis.

The middle Part of this Portion is a small horizontal Plate, perforated by several Holes, call'd *Lamina Cribrosa*, and in the back Part it has a little Notch for its Articulation with the Sphenoidal Bone. This *Lamina* may be reckoned the Body of the Bone, as being what principally supports all the other Parts thereof.

The lower Part is a perpendicular *Lamina*, which makes Part of the *Septum Narium*. Its Edge is rough and uneven, for its better Connection with the Vomer.

The lateral Portions of the Ethmoidal Bone are by far the most considerable, if we regard the Size only. *Winslow* divides each of them in two; one superior, which is the largest, and which he terms the Labyrinth of the Nostrils, it being full of Turnings and Windings, and irregularly cellulous; and one inferior, in the Shape of a Shell.

The Labyrinth has four Sides, and two Extremities. The upper Side is partly covered by the Cells of the Frontal Sinus, and large Opening already described. The lower Side is partly joined to the Cells of the Os Maxillare, and partly left exposed and free. It sends backward several Productions more or less considerable, which, in Skeletons, are often broken. These Productions sometimes join the Root of the sharp Process in the Sphenoidal Bone, being there fixed in lateral Grooves. The Inside is something convex and rough. It is turned toward the Septum, and fixed only to the Edge of the *Lamina Cribrosa*. The Outside is flattened, and very smooth, from whence it acquired the Name of Os Planum. It makes Part of the Inside of the Orbit, and at its upper Edge there are often one or two small Notches, being Parts of the internal Orbital Holes, already mentioned in the Description of the Os Frontis.

The anterior Extremity of the Labyrinth is unequally cellulous. It is partly covered by the Cellulae in the large Opening of the Os Frontis, and partly by the Os Unguis; and, by a kind of Funnel, it communicates with the Frontal Sinus. The posterior Extremity is covered partly by the Sphenoidal Bone, and partly by the Os Palati.

The inferior Part of each lateral Portion resembles, in some measure, an oblong Shell, such as that of a Muscle. *Winslow* calls it the *Concha Narium superior*, or upper Shell of the Nostrils. It is very rough and porous, its convex Side being towards the Septum, and the concave Side towards the Os Maxillare. One End of it is turned backward, the other forward; and there the upper Part of it joins the Labyrinth, by means of the Funnel already mentioned. This inferior Part is distinguished from the superior or Labyrinth, by a remarkable lateral Groove.

What has been said is sufficient to direct us in situating this Bone; remembering only, that the Head of the *Crista Galli* ought to be turned forward.

It is of a very delicate and tender Structure, tho' compact, and without any Diploë, being almost all composed of very thin bony Plates. It is joined to the Os Frontis, Os Sphenoides, *Ossa Nasi*, *Ossa Maxillaria*, *Ossa Unguis*, *Ossa Palati*, and Vomer.

The Uses of it are to be a principal Part of the Organ of Smelling, and to give a very great Extent to the Pituitary Membrane in a small Compais.

OSSA TEMPORUM.

The Temporal Bones are two in Number, situated in the lower and lateral Part of the Skull.

The Figure of each is partly semicircular, resembling the Scale of a Fish, partly like a shapeless Rock, ending in several Points.

VOL. II.

Each of them is divided into two Portions; one superior, termed squamous from its Figure; the other inferior, called Apophysis Petrosa, or the Rock, not so much from its Figure, as from its Hardness. This Portion is easily separable from the former in Children, and some Marks of this Division still remain in Adults, as *Riolanus* has observed.

They are likewise divided into two Sides; one external and convex, the other internal and concave: And thus the Eminences and Cavities in them may likewise be divided into external and internal.

The external Eminences are the Mastoide Apophysis in the lower and posterior Part of the Bone: The Zygomatic Apophysis is in the anterior Part; the Styloide Apophysis under the Bone, which seems originally to have been an Epiphysis. In one Subject *Winslow* saw this Apophysis three Inches in Length; and, in another, a Styloide Appendix joined to the ordinary Apophysis by a Ligament, and stretched along, the Stylo-pharyngeus Muscle; the capsular Apophysis, in which the bony Stylet seems, as it were, to be set; the articular Eminence of the Zygomatic Apophysis; the Lambdoidal Angle; the lower Side of the Apophysis Petrosa.

The external Cavities are, the articular Cavity immediately behind the Eminence of the same Name, which both together serve for the Articulation of the lower Jaw; the Crack in the articular Cavities; the Mastoide Notch or Groove, in which the Digastric Muscle is inserted; the Opening of the external Meatus Auditorius; the anterior indented Border of that Opening; the Stylo-mastoide, or anterior Mastoide Hole, which is the Orifice of the Passage of the Portio Dura of the auditory Nerve; *Fallopian* termed this Passage the Aqueduct, not because of its Use, but because of the Resemblance it bears to a kind of Aqueduct in his Country; the Orifice, or inferior Hole of the Carotid Canal in the Apophysis Petrosa, which alters its Direction upward and forward, and ends at the Point of the Rock near the Sella Sphenoidalis; a Portion of the Jugular Fossa; and a Portion of the Foramen Lacerum.

Among the external Cavities we are likewise to reckon a Portion of the Ductus Palatinus of the Ear, called commonly the Tuba Eustachiana. This Duct, which must not be confounded with the Aqueduct of *Fallopian*, follows pretty much the Direction of the articular Crack; the Zygomatic Notch; the Parietal Notch, which receives the posterior and lower Angle of the Os Parietale; the Sphenoidal Notch, which receives the spinal Apophysis of the Os Sphenoides; one or more little Sulci for the Ramifications of the temporal Artery; the Groove in the Apophysis Petrosa, by which it is connected to the great Apophysis of the Os Occipitis; we may likewise add the posterior Mastoide Hole, thro' which a small Vein passes, that empties itself into the lateral Sinus; this Hole is sometimes formed between this Bone and the Os Occipitis; sometimes it is wanting in one of the Bones, and sometimes in both. There is likewise, in some Subjects, a small superior Mastoide Hole, which loses itself in the Substance of the Bone.

In examining the internal Eminences and Cavities, we must distinguish the squamous Portion from the Apophysis Petrosa. In the former we see the radiated Indentations of the semicircular Edge, which, with the Parietal Bone, forms the squamous Suture: A Portion of the middle Fossa of the Basis of the Skull on the same Side, and several Inequalities in that Fossa.

The Apophysis Petrosa, or Rock, is a sort of pyramidal Body with three Sides, situated obliquely, so as that its Basis is turned backward and outward, and its Apex forward and inward, toward the Sella Turcica. Of the three Sides, one is superior, and inclined a little forward; the second posterior; and the third inferior. This last belongs to the Outside of the whole Bone, which has been already described.

The upper Side assists in forming the middle Fossa of the Basis of the Skull, being uneven, in the same manner as the Inside of the squamous Portion. We observe here a small irregular Hole, appearing to be double, and partly to be covered by a small bony Plate. This Hole is a kind of Break or Interruption in the Duct, thro' which the Portio Dura of the auditory Nerve passes.

In the back Side of the Rock we see the internal auditory Hole, and a Portion of the Fossa for the Cerebellum. Sometimes small indeterminate Depressions are observable in it, pretty deep in Children, but gradually obliterated as they advance in Years. At the Basis of this Apophysis we see a Portion of the Groove for the lateral Sinus, formed partly in this Basis, and partly in the Lambdoidal Angle; also a Portion of the Foramen Lacerum; and a small Point, which, as it were, divides this Hole in two, and distinguishes the Passage of the Jugular Vein from that of the Eighth Pair of Nerves.

As this Apophysis has three Sides, so we may observe in it three Angles; the first superior, between the upper and back Sides; the second posterior, between the back and lower Sides; and the third anterior, between the lower and fore Side. The superior Angle, which is the most apparent, has a Groove for a small Sinus of the Dura Mater; the posterior Angle is in a manner interrupted near the Middle of the Foramen Lacerum, and from it proceeds the little bony Point which divides this Hole,

Hole. At the End of it is a Groove, by which it is connected with the great Apophysis of the Os Occipitis. Between the Apex of the Apophysis Petrofa, and the superior Opening of the Carotid Canal, we often meet with a small Bone of the Sesamoid kind, mentioned long ago by *Riolanus*.

To set any one of the Ossa Temporum in its true Situation, the Zygomatic Apophysis must be placed horizontally, and turned forward, and the Mastoide Process directly downward.

Almost the whole Substance of the Ossa Temporum is compact: The squamous Portion is thin and transparent: The Mastoide Apophysis is hollowed by considerable Cells: The Substance of the Apophysis Petrofa is very hard and solid, with several internal Cavities for the Organ of Hearing contained in it.

Each Os Temporis is joined above to the Os Parietale by a squamous Suture; behind and below, to the Occipital Bone, partly by a true Suture, and partly by Harmony; before, to the great Alæ of the Os Sphenoides, by a squamous Suture; and below, to the spinal Apophysis of that Bone. It is likewise joined before to the Os Male, by the Zygomatic Suture.

The chief Uses of these Bones are to complete the Globe of the Skull, to serve for the Articulation of the lower Jaw, and for the Insertion of many Muscles; and, lastly, to contain the Organ of Hearing. See AURIS.

The Supernumerary BONES of the HEAD.

Winslow calls by the Name of Supernumerary Bones several Pieces found in some Skulls, principally between the Parietal and Occipital Bones. They form Breaks in the Lambdoidal Suture, and are joined by true Sutures to the Bones already mentioned.

Their Figure, Number, and Size, vary very much. They are sometimes, in some measure, triangular, but more frequently of no regular Figure. In some Subjects they encroach on the Occipital Bone, in others on the Parietal Bone, and sometimes they extend themselves every Way. They are commonly indented, and broader on the Outside of the Skull than on the Inside, in which they are without any visible Indentations, and sometimes are scarcely to be seen, when they are small on the Outside.

They have been termed Keys, a Name given by Joiners to the Pieces which serve to strengthen the Joints of Boards, but which can agree to them only with respect to their Situation, and not to their Uses in the Cranium, or other Bones of the Head. They serve to multiply the ordinary Sutures.

Some such Bones have likewise been found in the Joints between the Bones of the Head and Face, and between those of the Bones of the Face with each other; and to these might be added the supernumerary Teeth, placed out of the Rank of the rest.

The BONES of the FACE: And, first, The

OSSA MAXILLARIA.

The Ossa Maxillaria, or great Bones of the upper Jaw, are two in Number, situated one on each Side, in the anterior and middle Part of the Face.

Their Conformation is very irregular, and they are of a very considerable Extent.

Each of them may be divided into two Sides, one external, the other internal. By the external Side I mean all that appears in an entire Skull, without taking in the Arch of the Palate; and by the internal Side, that which makes Part of the Arch of the Palate, and all that is turned, to the Septum Narium.

The external Eminences are the Nasal Apophysis, which makes the lateral Part of the Nose; the Orbital Apophysis, which makes the inferior Portion of the Cavity of the Orbit, and, by a sort of Crista, forms the internal Portion of its Edge; this Process is likewise called Apophysis Malaris, because of its Connexion with the Os Male; the Apophysis Palatina, which, together with that on the other Side, forms the Arch of the Palate; the Apophysis Alveolaris, which is in the Shape of an Arch, and contains the Teeth; the Maxillary Tubercle, or the posterior Extremity of the last-named Arch; the Spine of the Nares, which is a small pointed Eminence above the anterior Extremity of the Apophysis Alveolaris.

The external Cavities are these: A Portion of the Orbital Fossa, where there is a small Fossula, in which the inferior oblique Muscle of the Eye is inserted, near the Lachrymal Duct, and a Fissure or Crack; a Portion of the Zygomatic Fossa; a Portion of the Fossa Palatina, or Arch of the Palate, in which many Inequalities are observable, more or less pointed, and often little pointed Hooks.

The Lachrymal Opening also, which receives the Os Unguis; a small Lachrymal Groove, which, together with the Os Unguis, forms the superior Part of the Lachrymal Duct; the Opening of the Nares; a Portion of the inferior Orbital Fissure, or Fissura Spheno-maxillaris; the Opening which receives the Os Palati; a very small Notch at the anterior Extremity of the Arch of the Palate, which forms the anterior Foramen Incisurum, so called from its Situation behind the Incisors; an oblique Groove in the posterior Part of the Maxillary Tu-

bercle, which contributes to the Formation of the posterior Foramen Maxillare.

Also the Orbital Canal, which runs from before backward; immediately under the inferior Portion of the Orbit; an anterior Orbital Hole, or the anterior Orifice of the Orbital Canal; the posterior Orbital Hole, or the posterior Orifice of the Orbital Canal, by which that Canal ends at the Edge of the Spheno-maxillary Fissure; the Crack or Fissure of the Orbital Canal, which appears more or less in the Orbit, and is often a little open backward; the small Holes of the Maxillary Tubercle; the small Holes near the Orbital Canal, and those of the Apophysis Nasalis, vary, and are sometimes wanting; the Sockets of the Teeth.

The internal Eminences and Cavities are as follow: The greatest Part of the Fossa Nasalis; the anterior Crista of the Nares, which is high and narrow; the posterior Crista of the Nares, which is low and broad; these two Cristae are a Continuation of the Spine of the Nares, and are so disposed as to form a long Groove for the Reception of the Septum Narium, when the two Maxillary Bones are joined together; a perpendicular and pretty hollow Groove, wide towards the upper Part, narrow towards the lower, which makes the inferior Portion of the Lachrymal Duct.

The anterior Ductus Palatinus, also, on one Side of the anterior Crista, and near the Spine of the Nares; this Duct, in its Course downwards, joins that of the other Jaw, and both together form the anterior Foramen Palatinum, or Incisurum, which is often very complex; a small anterior Eminence, or transverse Line, between the Nasal Opening, and the lower End of the Lachrymal Duct, which sustains the fore Part of the Concha Narium inferior; a rough broad Impression on the Maxillary Tubercle, on both Sides of the Passage of the Foramen Palatinum, by which this Bone is joined with the Os Palati; a small posterior Eminence, or transverse Line, covered with a Lamina of the Os Palati, which sustains the Inequalities of the posterior End of the Concha Narium inferior, by the Intervention of a Lamina of the Os Palati.

Lastly, the Maxillary Sinus, which is a large Cavity under the Orbit, in the Orbital Apophysis. It extends to the Suture of the Os Male, to the Spheno-maxillary Fissure, to the inferior Orbital Hole, and below to the Sockets. Towards its upper Edge there are sometimes Cells, which communicate with the Os Ethmoides. It opens between the two Conchae Narium, behind the Lachrymal Duct, by one or more Orifices, formed partly by a Portion of the Os Unguis. These Openings are all much higher than the Bottom of the Sinus.

I say nothing here of the Separation of this Bone by a small transverse Suture, behind the Foramen Incisurum, because it is seldom found but in young Subjects, before the Ossification is completed.

The Maxillary Bone is almost all compact, and without Diploë, except in the Alveolar Arch, and at the Point of the Orbital Apophysis.

To put this Bone in its true Situation, the Nasal Apophysis must be turned upward, the Alveolar Arch downward, and the Spine of the Nares forward.

The Maxillary Bones are connected with the Os Frontis, Os Ethmoides, Os Sphenoides, Ossa Unguis, Ossa Malarum, Ossa Nasi, Ossa Palati, Vomer, Conchae Narium Inferiores, and with each other.

They assist in forming the Organ of Mastication, the Arch of the Palate, the Cheeks, the Orbits, and the Nose.

OSSA MALARUM.

The Ossa Malarum, called also Ossa Zygomatica, and Malarum, are two in Number, situated in the lateral and middle Parts of the Face. They are, in some measure, triangular, or irregularly square.

They are divided into two Sides, the external a little convex, the internal unequally concave.

The Eminences in each Bone are the superior or angular Orbital Apophysis, which joins by Suture with the external angular Apophysis of the Os Frontis, and assists in forming the external Angle of the Orbit. From this Apophysis another subaltern Process runs inward on the Inside of the Bone, one Side of which forms a Portion of the Orbit, the other a Portion of the Zygomatic Fossa; the inferior or Maxillary Orbital Apophysis, which, with the angular Apophysis, forms the inferior external Portion of the Orbit; the Apophysis Malaris, which is in some measure the Basis of the rest, and, together with the Apophysis Maxillaris, joins the Orbital Apophysis of the Os Maxillare; the Zygomatic Apophysis, which makes a Part of the Zygoma, and also of the Zygomatic Fossa.

The Cavities are the great Orbital Slope, which makes the inferior external Portion of the Edge of the Orbit; the Zygomatic Notch above the Zygoma; one or more little Holes on the Outside, and in the Orbital Apophyses.

Each Bone is composed of two pretty compact Tables, with a small Quantity of Diploë between them, except in the anterior Part of the Apophysis Malaris.

The true Situation will be easily fixed, by considering what has been said about the Sides and Apophyses of this Bone.

The Os Mala on each Side is joined to the Os Frontis by the angular Apophysis, to the Os Sphenoides by the subalterna Apophysis, to the Temporal by the Zygomatic Apophysis, and to the Os Maxillare by its Basis.

These Bones make the prominent upper Part of the Cheeks, most remarkable in lean Persons. They form likewise a Portion of the Orbit, and complete the Zygomatic Arches.

OSSA NASI.

The proper Bones of the Nose are two in Number, joined together, and situated below the Forehead, between the two Nasal Apophyses of the Os Maxillaria.

Each of these Bones comes near the Figure of an oblong Square, the upper Extremity being narrow and thick, the lower oblique and thin, the middle Part bent inwards near the upper End in some Subjects, in others almost straight. The two Bones joined represent a sort of Saddle.

Each of them is divided into two Sides, one anterior or external, the other posterior or internal; two Extremities, one upper, the other lower; and two Edges, one external, the other internal.

The anterior Side is convex, tho' a little depressed or hollow'd above the Middle. The posterior Side is a little concave. The upper Extremity is very thick, full of Pits or Depressions: The lower Extremity is thin, unequally indented, and cut obliquely in such a manner, as that the two Bones, join'd together, form an acute Slope. The inner Edge, contiguous to the same Edge, of the other Bone, is even, except near the upper Part, where they are united by a kind of Suture: From this Edge a little Eminence runs inward or backward (which is sometimes wanting in one of the Bones); and, when they are joined, these Eminences represent a sort of Crista, or prominent Line, answering to the Septum Narium. About the Middle of the Outside, sometimes higher, sometimes lower, there is a Hole, which is sometimes wanting in one of the Bones, and sometimes there are several Holes in each.

The Substance is compact; sometimes, however, we meet with a small Quantity of Diploë at the upper End.

The particular Situation of these Bones is easily understood by the Description.

They are join'd to each other, partly by Suture, and partly by Harmony. They are join'd above to the Nasal Apophysis of the Os Frontis, laterally to the Nasal Apophyses of the Os Maxillaria, and internally or posteriorly to the anterior Edge of the perpendicular Lamina of the Os Ethmoides, by means of the prominent Line already mentioned.

They form the anterior and upper Portion of the Nose, and Part of the Septum Narium.

OSSA UNGUIS.

The Os Unguis, or Lachrymalia, are two in Number, each being situated in the Orbit, at the lower Part of the internal Angle. They are the least Bones of the Face, very thin, and transparent.

They are longer than they are broad, resembling, in some measure, the Nail of a Finger, from whence they have their Name, especially when undivided from the other Bones of the Head; for, being taken out of the Skull, their Figure is more irregular.

Each of them is divided into two Sides, one external, the greatest Part of which appears in the Orbit, in an entire Skull; the other internal, which is hid; two Extremities, one upper, the other lower; and two Edges, one anterior, the other posterior.

The Outside is smooth, and a little concave. Towards the anterior Edge is a Groove full of small Holes, like a Sieve, call'd the Lachrymal Groove. It begins at the upper Extremity, and runs down lower than any other Part of this Side of the Bone, the lower Extremity of it being hid by the Os Maxillare. It is distinguish'd from the rest of the Outside by a very sharp prominent Edge.

The Inside is rough, and unequally convex, with a perpendicular Depression, answering to the sharp Prominence on the Outside. On the upper Part of this Inside small Portions of cellular Laminæ are sometimes observable, which communicate with the Entry of the Frontal Sinus. There are likewise some about the Middle, which complete the anterior Ethmoidal Cells; and others towards the lower End, which communicate with the rugged Portions of the upper Border of the Sinus Maxillaris. These often vary, and are sometimes wanting.

These Bones are altogether without Diploë.

What has been said about the two Sides, and Lachrymal Groove, sufficiently determines the Situation.

They are connected with the Os Frontis, with the Os Ethmoides, covering a Part of the Cells in that Bone, with the Nasal Apophysis of the Os Maxillare, and with the Groove of that Bone, in such a manner, as that the two Grooves, joined together, form an entire Tube, call'd the Lachrymal Duct.

They also cover a little the Opening of the Maxillary Sinuses, and join the inferior Conchæ of the Nares; of which they appear to be only a Continuation, in an advanced Age.

The Uses of them are to complete the internal Sides of the Orbit, to cover the fore Part of the Labyrinth of the Nose; and to form the Lachrymal Duct.

OSSA PALATI.

The Bones of the Palate are two, situated in the posterior Part of the Arch of the Palate; between the Pterygoide Apophyses and the Os Maxillaria; and running up; on the Sides of the Nasal Fossæ; all the Way to the Bottom of each Orbit.

The Figure of these Bones is not square, as is said by those who have only seen that Portion of them which belongs to the Palate, and from thence have named them Os Palati. The entire Bone is crooked, hooked, pointed, and uneven, though but of a small Size.

Each of them may be divided into four Portions, one superior, one middle, and two lower, whereof one is anterior, the other posterior.

The lower and anterior Portion, which *Winslow* calls Portio Palatina, is the Basis or Body of the Bone, and the only Part of it which the antient Anatomists have observed; *Vidus Vidius* excepted. It completes the Arch of the Palate, and the Bottom of the Nasal Fossa. The inner Edge of it is raised, and that, join'd to the like Edge of the other Bone, forms a Groove, which supports Part of the Septum Narium, in the same manner as the other Part of it is supported by a like Groove of the Os Maxillaria. The posterior Edge is gently sloped, and ends inwardly in a Point, which joins a like Point in the other Bone.

The lower and posterior Portion, which *Winslow* names Pterygoide, is pointed and hollow'd on each Side, to join the Pterygoide Apophysis, of which it completes the Fossa, being fix'd like a Wedge in the irregular Notch of that Process: Exteriously it is uneven, the better to be connected with the Os Maxillare. This Portion is distinguish'd from the Portio Palatina, and also from the middle Portion, by an oblique half Canal, which, with the half Canal in the Maxillary Tubercle, forms an entire Canal; the lower End of which is the posterior Foramen Palatinum.

The middle Portion, to which *Winslow* gives the Name of Nasal, is very thin, and is situated laterally. It has an internal and external Side: The internal Side is a little concave, being turn'd toward the Nares; and at the lower Part of it there is a transverse Eminence, or bony Line, which distinguishes this Portion from the Portio Palatina. The Outside is a little convex, and partly covers the Opening of the Maxillary Sinus. At the lower Part of it is a transverse Groove, answering to the Eminence on the other Side, and moulded, as it were, by the posterior transverse Eminence of the Os Maxillare.

The upper Portion, which *Winslow* calls orbitary, is distinguish'd from the Nasal Portion by a Notch, which, together with the Pterygoide Apophysis of the Sphenoidal Bone, forms an Opening more or less considerable, which may be call'd Foramen Spheno-palatinum, or Pterygo-palatinum. This Portion has five little Sides, three of which are rather Cavities; one superior, which completes the Extremity of the Bottom of the Orbit, and is more or less flat, very small, smooth, and triangular; one anterior, which is a little hollow, covering the upper Part of the Maxillary Tubercle, and, by a smooth raised Edge, completing the Fissura Spheno-maxillaris; the third Side is likewise anterior, more hollow than the former, joining the back Part of the Labyrinth of the Os Ethmoides; the fourth is posterior, more or less hollow, answering to the Sphenoidal Sinus; the fifth is lateral and external, covering the posterior and upper Part of the Maxillary Sinus. It must be observed, that these Sides and Cavities vary, being sometimes single, sometimes complex.

There is very little Diploë in these Bones, except in the Palatine and Pterygoide Portions.

By considering the Division of these Bones already mention'd, it is easy to put them in their true Situation.

They are join'd to each other by the Portio Palatina; to the Vomer by the common Groove form'd by their raised Edges; to the Maxillary Bones before, and laterally to the Sphenoidal Bone behind; to the inferior Shells of the Nares by their transverse Eminences; and, lastly, by their Orbitary Portions to the Os Ethmoides, Os Maxillaria, and Os Sphenoides.

They complete the Arch of the Palate, the Pterygoide and Nasal Fossæ, and the Orbit: They assist in supporting the Vomer, and Conchæ Narium inferiores.

VOMER.

The Situation of the Vomer is perpendicular, between the two Nasal Fossæ backward.

The Figure of it is nearly that of an oblique Square, having some Resemblance to a Plough-share, from which it has its Name.

It is divided into two Sides, one to the Right, the other to the Left, both of them unequally flat; and into four Edges, the superior, inferior, anterior, and posterior.

The upper Edge is an horizontal Groove, which receives the sharp Process, or Rostrum of the Os Sphenoides. This Groove is broad, and a little notch'd backward; the fore Part of it is narrower, and ends in a strait Canal, which runs downward and forward in an oblique Direction, dividing the Bone, as it were, into two Laminæ.

The anterior Edge is oblique, and very unequal. It may be divided into two Parts, one anterior and posterior. The posterior Part is small and thin, and supports the perpendicular Lamina of the Os Ethmoides. The anterior Part is larger, with a pretty deep Groove, continued from the Canal in the upper Edge, which sustains the Cartilaginous Septum of the Nares.

The lower Edge is likewise unequal; and near its anterior Extremity is an Angle, which divides it into two Parts; one anterior, very short, which is set in the Crista Narium; the other posterior, and much longer, set in the common Groove of the *Ossa Maxillaria* and *Ossa Palati*: The Angle which distinguishes this Edge into two Parts, lies in the Notch form'd by the Crista Narium, and the Groove of the Maxillary Bones.

The posterior Edge is oblique and sharp, becoming insensibly more obtuse, as it approaches to the large Groove in the upper Edge.

This Bone has but very little Diploë.

To situate it right, we need only attend to the Description of its Parts.

It is connected with the Os Sphenoides, Os Ethmoides, *Ossa Maxillaria*, and *Ossa Palati*, in the manner already said.

Its Use is to form the posterior Part of the Septum Narium.

CONCHÆ NARIIUM INFERIORES.

The inferior Conchæ of the Nares are two in Number, situated in the Nasal Fossie, under the Openings of the Maxillary Sinus, and immediately above the inferior Orifices of the Lachrymal Ducts. They cover these Orifices much in the same manner as the superior Conchæ of the Ethmoidal Bone cover the Maxillary Openings. They are likewise term'd the inferior spungy Laminæ of the Nose.

Their Figure is very much like that of the superior Conchæ.

Two Sides are distinguishable in each of them, one internal, and one external; as likewise two Extremities, the anterior and posterior; three Edges, two superior, one small, the other great, and one inferior; and, lastly, two Apophyses, one small or superior, the other large or lateral.

The Inside is a little convex, being turn'd towards the Septum Narium: The Outside is proportionably concave, turn'd toward the Maxillary Sinus. Both Sides are rough and uneven.

The Extremities are pointed, but the posterior more than the anterior.

The inferior Edge, the most considerable of the three, is rough, thick, a little rounded, and turn'd outward, that is, toward the Os Maxillare. It is suspended like the Ethmoidal Concha, without resting on any thing.

Of the superior Edges, the small or anterior Edge is thin, uneven, and of the same Length with the anterior transverse Eminence of the Os Maxillare, to which it is join'd. The large or posterior superior Edge is longer than the other, and is join'd backward to the small transverse Eminence of the middle Portion of the Os Palati. These two superior Edges are distinguish'd by an obtuse Angle, form'd by them. The great Edge has a large thin Apophysis in the Shape of a Nail, which runs down on the inner or concave Side of the Bone. This Apophysis, which is the greatest of the two already mention'd, is sometimes smooth, sometimes uneven, divided and notched. It partly covers the Maxillary Sinus, and helps to make the Opening thereof.

The small or superior Apophysis is a thin Plate, which divides the two upper Edges: It is, as it were, a small Portion of a Groove, which, join'd to the lower End of that in the Os Unguis, completes the Lachrymal Canal; and, in Adults, it has appear'd to be a true Continuation of the last-named Bone, as if the inferior Concha of the Nares and Os Unguis were both one Piece.

The true Situation of these Bones is sufficiently shewn, in what has been said about their Sides, Extremities, and Edges.

They are connected with the *Ossa Maxillaria*, *Ossa Palati*, *Ossa Unguis*, and sometimes with the Os Ethmoides, of which they appear'd, in one Subject, to be a true Continuation. In most Skeletons these Connections are but very slender, and therefore these Bones are easily lost, which is the Reason why the Antients have not observed them.

They complete the bony Structure of the Nose, augment its Surface, and render it proportionable to the Extent of the Organ of Smelling, and of the Pituitary Membrane. See *NASUS*.

MAXILLA INFERIOR.

The lower Jaw is but one Bone in Adults, and makes the lower Part of the Face.

It bears some Resemblance to a Bow, with the Ends bent upward.

It may be divided into a Body and Branches. The Body is that Portion which represents a Bow: The Branches are the Extremities bent upward. In the Body we distinguish an anterior Portion, call'd the Chin; two lateral Portions; two Sides, one internal, and one external; and two Edges, one superior, which is the Alveolar Arch of this Jaw, and one inferior, call'd the Basis, and divided into an external and internal Labium. This Basis ends posteriorly in a crooked Portion, term'd the Angle of the lower Jaw.

In the Middle of the anterior Side of the Chin is a perpendicular Eminence or Line, which marks the Place where this Bone is divided in Children, and for that Reason it is named the Symphysis of the lower Jaw. On each Side of the Symphysis are two Muscular Impressions, one high, the other low, more or less excavated, and in some Subjects distinguish'd by a small transverse Eminence. The external Labium of the Basis of the Chin is a little prominent, and border'd on each Side by Eminences more or less considerable, by which the Chin appears to be distinguish'd from the lateral Parts of the Body of the Bone.

The Backside of the Chin is concave, and Inequalities are seen in it through the whole Length of the Symphysis. From the upper Edge to the Middle of the Symphysis, or thereabouts, runs a superficial Asperity, broader below than above, and more remarkable in the Symphysis than on either Side. Immediately below this Asperity there are several Tuberosities, more or less raised, and rough, the lowest of which is on the internal Labium of the Basis. On each Side of the uppermost Tuberosity is a large shallow Impression. At the very lowest Border of the internal Labium of the Basis, on each Side of the Symphysis, there is a pretty large muscular Impression, with a transverse Asperity between them, which in a manner joins them to each other. We sometimes meet with small Holes in the upper Part of the Symphysis, and near it.

The Outside of each lateral Portion of the Body of this Bone is a little convex. On each Side of the Chin is a pretty large Hole, which is the anterior Orifice of a Canal. There is also a long Eminence or Elevation, which, beginning at the Basis, near the before-mentioned Hole, runs obliquely upward and backward toward the Branch of the Jaw, growing more prominent as it ascends. The lower End of this Side sometimes juts out a little.

In the Inside of this lateral Portion, a little below the Alveolar Edge, there is likewise a long Eminence, less oblique, but more prominent, which runs upward and backward, much in the same manner with that on the Outside.

The posterior curve Portions are the flattest of all, and represent a sort of oblong Square, irregular, and a little oblique. In each of these Branches two Sides are to be taken Notice of, one internal, and one external; also two Apophyses in the upper Part of them, one anterior, call'd the Coronoid Apophysis, and one posterior, call'd the Condylod Apophysis; a large Opening between the two Apophyses; and, lastly, an Angle, by which the posterior and lower Part or Basis of the Branch is terminated.

The anterior or Coronoid Apophysis is flat, sharp at the upper End, broad at the lower, something uneven on the Outside, and a little prominent about the Middle of the Inside, by the Continuation of the internal oblong Eminence of the lateral Portion. The anterior Edge of this Apophysis is a Continuation of the oblique external Eminence of the same Portion.

The posterior Apophysis is term'd Condylod, because it ends in a Head resembling a Condyle, set upon a kind of Neck. This Condyle is oblong, and situated almost transversely, the internal Extremity of it being only turn'd a little backward, and the external forward, which Direction answers to that of the articular Eminence and Cavity of the Os Temporiz, with which this Condyle is articulated. It advances more toward the Inside than toward the Outside of the Bone, and the Neck is bent a little forward. This Neck is convex on the Back, and on the fore Part there is a muscular Fossula immediately under the Condyle.

The great Opening between the Apophyses has a sharp Border, which is, as it were, a Continuation of the posterior Edge of the Coronoid Apophysis. It is in the Shape of a Cretcent, and ends at the outer Extremity of the Condyle, on the Outside of the Fossula in its Neck.

The Outside of the Branch is very full of superficial Inequalities, or muscular Impressions, especially near the Angle. This Angle is blunt, uneven, and turn'd more or less toward the Outside.

The Inside has the same sort of Inequalities towards the Angle. About the Middle of this Side is a very irregular Hole, being the internal Orifice of a large Canal, which, after having

run down a little Way in the middle Substance of the Branch, changes its Direction, continuing its Course thro' the Middle of the lateral Portion, all the Way to the Hole near the Chin, which is its external Orifice, and then loses itself in the Substance of the Chin. The internal Orifice of this Canal is broad above, oblique, flat, more or less notched, and in some measure lacerated. A little below this Orifice are sometimes found two little Holes, one above, and at some Distance from the other, which are the Orifices of a very small Canal, running immediately under the Surface of the Bone. This Canal is the Continuation of a small Groove, which begins at the Edge of the Orifice of the great Canal, and from thence runs a very little Way down. In some Subjects we find only this Groove, without any Canal.

The upper Edge of the Body of the lower Jaw is pierced by sixteen Holes or Fossulae, call'd Sockets, which contain the like Number of Bones, call'd Teeth. See DENS.

This Bone appears to have a larger Share of Diploë, in proportion to its Size, than any other Bone of the Face, especially near the Alveolar Arch. The Tables are very solid, and not equally thick in all Parts.

There is no Difficulty in determining the Situation of the lower Jaw.

The lower Jaw is connected with the *Ossa Temporum* by a very singular kind of Articulation, partaking of the Nature both of a *Ginglymus* and *Arthrodia*, and therefore *Winslow* terms it *Amphidiarthrosis*. Its principal Motions are upward and downward, and in all the different Degrees thereof; we can thrust it forward, pull it backward, and turn it to either Side; and in the same manner, in any Degree of Motion, forward, backward, or laterally, we can raise or depress it. The Mechanism of this Articulation, and the Motions thereof, depend also on a Cartilage, to be described hereafter.

Recapitulation of the FORAMINA or Holes in the Head, as represented by Keill.

They are either external or internal. The external Holes are,

1. The two in the Coronal Bone above the Orbit, through which a Vein, Artery, and a Nerve, from the Ophthalmic Branch of the Fifth Pair, pass, for the Brow and Frontal Muscles. This frequently appears only as a Notch.
 2. The *Orbiter internus*, in the same Bone within the Orbit, a little above the *Os Planum*, for another Branch of the Fifth Pair of Nerves, which goes to the Nose.
 3. The third is between the *Os Unguis* and the *Os Maxillare*, in the great *Canthus*, thro' which the Lachrymal Duct passes to the Nose.
 4. The *Orbiter externus* in the *Os Maxillare*, below the Orbit, thro' which the Nerves and Vessels, which come from the Teeth, pass to the Cheek.
 5. One single Hole in the same Bone, behind the fore Teeth, which comes from the Nose.
 6. Two in the *Ossa Palati*, through which a Branch of the Fifth Pair of Nerves passes to the Palate, Uvula, and Gums.
 7. In the Temporal Bone, between the Mastoide and Styloid Processes, thro' which the *Portio Dura* of the Auditory Nerve passes.
 8. The *Ductus Auditorius externus*.
 9. The *Ductus Auditorius internus*.
 10. The Conduit for the Carotid Artery.
 11. Another, in the same Bone, thro' which a Vein passes from the external Teguments to the lateral Sinuses. This is behind the Mastoide Process.
 12. In the Occipital Bone behind its Apophysis, thro' which the Vertebral Veins pass.
 13. In the same Bone, for a Branch of the external Jugular.
 14. One single large Hole for the Medulla Spinalis.
- The internal Holes are,
1. The blind Hole above the *Crista Galli*.
 2. The Holes in the *Os Ethmoides*.
 3. In the *Os Sphenoides* for the Optic Nerves.
 4. The *Foramen Lacerum*, thro' which the third, fourth, first Branch of the Fifth, and Sixth Pair of Nerves pass.
 5. For the second Branch of the Fifth Pair of Nerves.
 6. For the third Branch of the same Nerve.
 7. The *Foramen Arteriae durae Matris*.
 8. The Canal thro' which the Carotid enters, and the Inter-collal Nerve passes out; but this is counted among the external Holes.
 9. In the Process of the *Os Temporum*, thro' which the Auditory Nerve passes.
 10. Between the Temporal and Occipital Bones, it is divided in two by the *Dura Mater*; thro' the one Part passes the Eighth Pair of Nerves, and the *Nervus Accessorius*; thro' the other the lateral Sinuses open into the internal Jugulars.
 11. One in each Side of the large Hole of the *Occiput*, thro' which the Ninth Pair of Nerves goes out.

VOL. II.

The lower Jaw has four Holes, two on its Inside near its Processes, and two on its Outside near its Middle. By the internal Holes enter a Branch of the Fifth Pair of Nerves, an Artery from the Carotids, a Vein passes out to the Jugulars, their Branches are spread in the Roots of the Teeth. By the external Holes these same Vessels pass, and are distributed upon the Chin. It has also sixteen Sinuses; into which the Teeth are set. *Keill*.

I must apprise Students in Physic, that it is not possible to form a perfect Idea of the Bones of the Head, and their various Connections, by any Description whatever. The only Method of acquiring a Knowledge of them, is to procure a Skull separated artfully into the several Bones; of which it is naturally composed; and another with the Bones connected together by their proper Articulations. Thus by carefully comparing them with the Description here given, and with each other, a perfect Knowledge of these Parts may be readily acquir'd, which is indispensably necessary in Surgery particularly. It is farther of Importance to the Surgeon, to know the Situation of the Cartilages and Ligaments belonging to the Head, of which *Winslow* gives the following Account; but neither his, nor any other Description of them is sufficient for a complete Knowledge of them, without dissecting the Parts to which they belong.

The Condylode Apophyses of the *Os Occipitis*, the Glenoid Cavities or articular Fossulae of the Temporal Bones, the Eminences next these Cavities, and the Condylode Apophysis of the lower Jaw, are all crusted over with very white and smooth Cartilages; and there is likewise an inter-articular or moveable Cartilage in each Articulation of the lower Jaw with the temporal Bones.

This Cartilage is thick near the Circumference, very thin and transparent, and sometimes perforated, in the Middle. The lower Side is uniformly concave, answering to the oblong Convexity of the maxillary Condyle; but the upper Side is partly concave, and partly convex, suited to the Fossula and Eminence in the temporal Bone.

For the Cartilages and Ligaments of the Nose, see NASUS.

For the Cartilages and Ligaments belonging to the Eye, see OCULUS.

For the Cartilages and Ligaments of the Ear, see AURIS.

For the Cartilages of the *Os Hyoides*, see LINGUA.

The Ligaments of the Bones of the Head are these. 1. Those betwixt the Occipital Condyles, and the superior Apophyses of the first Vertebra of the Neck. 2. Those between the *Os Occipitis* and Apophysis Dentiformis of the second Vertebra. 3. Those of the Articulation of the lower Jaw with the Temporal Bones. 4. Those by which the *Os Hyoides* is connected to the Styloide Apophyses.

The Ligaments of the Occipital Condyles resemble the articular Ligaments of the Vertebrae, consisting of a strong Texture of ligamentary Filaments placed close by each other round the whole Articulation, and fixed by one End in the Occipital Bone, by the other in the Edges of the superior Apophyses of the first Vertebrae, and surrounding the Capsular Ligament.

The Ligaments which go from the *Os Occipitis* to the Apophysis Dentiformis, are very thick, and disposed in separate Fasciculi, which afterwards unite. The Fasciculi are fixed immediately before the great Occipital Foramen in the lower Side of the Apophysis Basilaris, and the united Ligament is inserted in the Apophysis Dentiformis.

The Ligaments of the Articulation of the lower Jaw are very strong, and are disposed and inserted much in the same manner with those by which the Clavicle is connected to the Sternum. They are fixed by one Extremity round the Glenoid Cavity, or articular Fossula and Eminence of each Temporal Bone; by their Middle, round the inter-articular Cartilage; and by the other Extremity, round each Condyle of the lower Jaw. The Disposition of the Capsular Ligament, with respect to the inter-articular Cartilage, is the same as in the Articulation of the Clavicle with the Sternum.

The Bones of the Head, as well as all other Bones of the human Body, are cover'd by a particular Membrane, of which that Part which belongs to the Skull, is term'd Pericranium, and that which covers the Bones of the Face, or of the two Jaws, is called simply Periosteum.

The internal Structure of the Bones of the Head being for the most part cellularous, they contain also distinct Portions of Marrow included in membranous Cells lying in the Diploë.

The Sinus Frontales, Maxillares, and Sphenoidales, are lin'd with a glandulous Membrane, which secretes a Mucilage very different from that of the Joints.

The true mucilaginous Glands of the occipital and maxillary Articulations have nothing peculiar to them. They are proportion'd to the Joints to which they belong, and lie between the Capsular Ligament and Circumference of the Cartilages. *Winslow*.

The *Os Hyoides* is a Bone properly belonging to the Head, but,

but, as it is describ'd under *LINGUA*, I must refer to that Article for an Account of it.

As it is of infinite Importance to the Practice both of Physic and Surgery, to be perfectly acquainted with all the Parts of the Head subjected to Injuries either external or internal, I shall proceed to give an Account of the Muscles of the Head most subject to Wounds, Contusions, Abscesses, and other Disorders. This I chuse to do after the Descriptions of the Bones, because the Origins and Insertions of the Muscles could not have been comprehended without a previous Knowledge of the bony Parts.

MUSCLES of the HAIRY SCALP and FOREHEAD.

To demonstrate these Muscles, the following Method may be observ'd: Make an Incision through the common Integuments of the Head, the first and direct Line of Division being continued from the middle and inferior Part of the *Os Occipitis*, to the same Part of the *Os Frontis*; the other transverse from two circular Ducts round each Ear, intersecting the former on the *Sinciput*, begin from the Concourse of Angles, taking care, in freeing the Forehead, not to raise the *Musculi Frontales*.

OCCIPITALIS.

This and its Partner are mentioned by *Columbus*, and accurately describ'd by *Fallopian*; they are short, but broad, thin, fleshy Muscles, situated on the Occiput, from whence they derive their Names; each of these arises fleshy from that Part of the *Os Occipitis*, where the *Massoideus* and *Musculus Splenius* are inserted, and soon becoming tendinous, joins with the *Pericranium*, which firmly adheres to the hairy Scalp on the *Sinciput*. When these act, they pull the hairy Scalp backwards. *Cowper*.

Eustachius figures two other Muscles on the Occiput, which *Lancisi* calls *Musculi quadrati*; and which are represented *Tab. 11. Fig. 1. 1.*

Because, says *Lancisi*, none either of the Antients or Moderns, so far as I know, has given Representations of these Muscles, tho' *Thomas Bartholine* makes mention of them, but asserts, that they are not always, but only sometimes, to be found, I therefore think it worth while to say something by the Way concerning them.

These Muscles, as I myself have seen, in all the Subjects I have dissected, rise with a fleshy Origin on both Sides the *Os Occipitis*, and with broad Tendons are carried directly upwards to the lambdoidal Suture. With respect to their Use then, till some more accurate Anatomist advances something more probable, we may conjecture, that they perform the same Office in the posterior Part of the Cranium, that the frontal Muscle does in its anterior Part; for after this last-mention'd Muscle has drawn the anterior Part of the Head, commonly called the Forehead, upwards, and when the Muscles of the Ears have in some measure corrugated the lateral and posterior hairy Parts, these posterior Parts of the Skin are soon drawn downward by these occipital Muscles, which act, as it were, like Antagonists, which any one may experience in himself, as I myself have often made Trial of the Thing. Perhaps these are the Muscles which becoming often preternaturally contracted and tense, especially in hysterical Women, create the Pain in the Occiput, so often mention'd by *Hippocrates*.

FRONTALIS, *Tab. 10. Fig. 1. 1.*

This arises thin, broad; and fleshy, from the upper Part of the *Os Frontis*, near the *Sutura Coronalis*; and, descending by the posterior and fore Part of the *Temporalis*, meets with its Partner near their Insertions to the Skin of the Eyebrows.

These, acting, draw up and wrinkle the Skin of the Forehead, and cannot antagonize the *Occipitales*, as some imagine, since their Originations are from the Bone above, and their Terminations in the Skin of the lower Part of the Forehead.

Besides these, *Valherus Coiter* counts another Pair, which later Authors call *Corrugatores*, arising near each great Canthus of the Eye at the *Puncta Lachrymalia*, seeming to terminate about the middle Region of the Eyebrows. But we rather incline to the Opinion of others, who take them to be two oblique Elongations of the former Muscles. *Douglas* makes these distinct Muscles.

To raise the Skin, and discover the Muscles, of the Face, which in the Order of Dissection are next to be prosecuted, continue your former Division from the *Dorsum Nasi*, where you before left it, to its Apex; form two semicircular Sections on each Side the *Alae Nasi*, to the *Septum Narium*; make a direct one to join with a circular Incision about the Lips, and from the Middle of that of the lower Lip draw your Knife directly over the Chin, Neck, and Sternum, till you meet the longitudinal one made in the Dissection of the Muscles of

the Abdomen. The Skin is best clear'd from the Eyelids, after raising it from the circumambient Parts. In the Practice of this Operation special Attention must be had, lest you wound the *Orbiculares Palpebrarum*, *Tab. 10. Fig. 2. 2.* Care also must be taken, in raising the Skin of the Neck and Face, not to raise the *Quadratus Genæ*, or *Subcutaneus*, with it.

Of the MUSCLES of the EYELIDS.

Galen, and the antient Anatomists, together with *Vesalius*, were extremely deceived in their Ideas of these Muscles, in dividing the *Orbicularis* into two, and supposing thereby all the Motions of the Eyelids were perform'd. But this System was first alter'd by *Fallopian*, partly from an Intimation of *Oribasius*, in his Book *de Diffect. Muscul. ex Galeno*, *Cap. 6.* where he takes Notice, that, in the Cure of an *Ægilops*, not only the described Beginnings of these Muscles are cut and burnt away, but the Bone underneath exfoliated; and yet the Motion of the Eyelids remains: And partly from the Dissection of the Eye in a Sea-calf, where he observed four Muscles latent in the Orbit, inserted above, underneath, and on both Sides the *Palpebræ*, he was induced to make the like Inquiry in Man, in whom he happily discover'd the *Aperiens Palpebram Rectus*, which shall be described hereafter. We mention this Passage, because some later Authors have favoured the Account of the former, retaining their Distinctions into *Semicircularis superior*, and *Semicircularis inferior*.

ORBICULARES PALPEBRARUM.

Tab. 10. Fig. 2. 2.

This is a thin fleshy Muscle, whose Fibres circularly environ the Eyelids, and are inserted to them, (like the *Sphincter Labiorum*, *Tab. 10. Fig. 11. 11.*) not adhering to any Bone from whence we may derive their Origin, except the superior Part of the great Bone of the Nose, by some reckon'd the fourth Bone of the upper Jaw.

This Muscle, acting like the Sphincters of other Parts, constricts the Eyelids. To these *Riolan* adds another Muscle, belonging to each Eyelid, which he calls *Ciliaris*, which we take to be a Portion of the former, adjacent to the Cilia.

To discover the *Aperiens Palpebram Rectus*, that Part of the *Orbicularis Palpebrarum* lying between the upper Eyelid and Eyebrow must be raised; after which the *Glandula Lachrymalis*, with Part of the Fat within the Orbit, being removed, by extending the upper Eyelid, either with a Hook, or your Fingers only, its tendinous Insertion, and slender fleshy Body, will appear.

APERIENS PALPEBRAM RECTUS.

So call'd from its strait Progress and Use. It arises, sharp and fleshy, from the profoundest Part of the Orbit, near the Place where the Optic Nerve is transmitted; passing directly over the *Musculus Attollens*, it becomes tendinous as it marches over the Bulb of the Eye, whence growing still broader and thinner, till it is inserted to the whole superior Part of the upper Eyelid.

For the Muscles of the Eyes, see *OCULUS*.

The MUSCLES of the NOSE.

The Nose is altogether immoveable, except in its lower gristly Parts, which are not improperly call'd *Alæ* or *Pinnæ*: These, by their Approach or Recess, constrict or dilate the Nostrils. *Galen* assigns but one Pair of Muscles to them, to which *Jacobus Beringarius Carpenfis*, in his Commentary on *Mundinus*, adds another, arising from the Extremities of the Bones of the Nose, and inserted to the Inside of the *Alæ*; wherein he is follow'd by *Vesalius*. *Columbus* pretends those described by *Galen* belong to the upper Lip, and that those placed in the Inside of the Nose (above-mentioned) are entirely fictitious; describing still another Pair, arising from the upper Parts of the Bones of the Nose, and inserted to their *Alæ*. *Fallopian* is not positive, whether he has seen those internal Muscles, mention'd by *Carpus* and *Vesalius*; but Mr. *Buëssier*, an accurate Anatomist, inform'd *Cowper*, he had frequently observed them; adding, that those describ'd by *Columbus*, above-mention'd, do not properly belong to the *Alæ*, but are rather Parts of the *Orbiculares Palpebrarum*. *Fallopian* still describes another Muscle, not taken Notice of before him, which late Anatomists call *Constrictor Alæ Nasi*, the Invention of which *Placentinus* assumes. In describing these Muscles we shall imitate the Order of *Riolan*, and others, who divide them into proper and common.

The proper are those which move the *Alæ* alone, as the *Dilatatores Alarum Nasi*.

The common are those which move the *Alæ*, together with the upper Lip, as the *Retractoris* and *Constrictores Alarum Nasi*.

First of the proper.

Dilatatores

Dilatores Alarum Nasi.

These are small thin Muscles, having a double Order of Fibres decussating each other, not unlike the Musculi Interco-stales. They arise from the inferior and internal Parts of the Os Nasium, and are soon inserted to the superior Parts of the Alæ. These pull up the Alæ, and dilate the Nostrils; but I am inclin'd to think they are not found in all Subjects.

Retractores Alarum Nasi, & Elevatores Labii superioris.

These were mentioned by Galen: They arise, broad and fleshy, from the fourth Bone of the upper Jaw; whence descending obliquely, they are soon inserted to the upper Lip and Alæ Nasi.

The *Constrictor Alæ Nasi*, mention'd by Fallopius and Placentinus, we suspect to be altogether fictitious.

Constrictores Alarum Nasi, ac Depressores Labii superioris.

These arise fleshy from the fore Parts of the fourth Bones of the upper Jaw, immediately above the Gums of the Dentes Incisorii, and, ascending, are soon inserted in the Roots of the Alæ Nasi, and superior Parts of the upper Lip.

When these act, they draw the upper Lip and Alæ downwards, by which means they bring the latter nearer each other. Hence, when we attempt the Reception of any odoriferous Effluvia, the upper Lip is pull'd downwards.

Of the MUSCLES of the CHEEKS and LIPS.

Since Authors generally disagree concerning the Number, Description, and Use of these Muscles, we shall not insert their particular Differences.

These Muscles of the Lips are either common to the Cheeks and Lips, or to both Lips, or proper to the upper and under Lip only.

Those common to the Cheeks and Lips are two Pair, on each Side two Muscles, viz. the Quadratus and Buccinator.

Quadratus Genæ, seu Tetragonus.

By Galen call'd *Platysma Muoides*, or the muscular Expansion. This is a great square Muscle, lying under the Skin of the Neck, and is spread over the whole inferior Region of the Face. It arises thin and membranous, according to Galen, from the Spines of the Vertebrae of the Neck. It also springs from the Skin on the superior Part of the Cucullaris and Pectoral Muscle; from hence ascending under the Skin of the Neck, it becomes fleshy; and one Part, adhering to the Os Hyoides, is soon inserted to the Middle of the lower Jaw; the other broader Portion proceeding farther to its Implantation in the Cheeks, below the Angle of the Lips.

When both these Muscles act, they pull down each Angle of the Mouth, together with the Cheeks, which Posture of the Face is the proper Expression of Sorrow. But if the inferior Parts of these Muscles (which lie on the Neck) act alone, they distend the superincumbent Skin, by making it approach to a direct Line with the Claviculæ and lower Jaw-bone, which otherwise is indented according to the Formation of the Part, whereby a double Chin (as they call it) is represented. This Muscle is also call'd *Subcutaneus*.

The BUCCINATOR is described under the Article of its Name, which see.

The Muscles common to both Lips are such as are inserted into the Angles of the Mouth, as the Zygomaticus, Elevator, Depressor, and Constrictor Labiorum.

ZYGOMATICUS.*Tab. 10. Fig. 8.*

So call'd by Riolan, because it arises from the Os Jugale, or Zygoma. Its Origination is round and fleshy, from the external Part of the same Bone; whence descending obliquely forwards, is inserted near the Angle of the Lips.

When this Muscle and its Partner act, they draw both Lips upwards, and make a pleasant Countenance.

ELEVATOR LABIORUM.*Tab. 10. Fig. 9.*

This lies between the Zygomaticus and Elevator Labii superioris Proprius, *Tab. 10. Fig. 10.* It riseth from the fourth Bone of the upper Jaw, and descends directly to its Insertion under the Termination of the former.

DEPRESSOR LABIORUM.

This arises fleshy from the lower Edge of the inferior Jaw-bone laterally, and ascends directly to its Insertion at the Angle of the Lips.

This, with its Partner, and the Quadrati, acting, express a sorrowful Countenance, in drawing down the Corners of the Mouth and Cheeks.

CONTRACTOR LABIORUM, or Sphincter & Orbicularis Labiorum.*Tab. 10. Fig. 11. 12.*

This environs the Lips with Orbicular Fibres, and, when it acts, it corrugates them; wherefore some name it *Osculatorius*.

The Muscles proper to the upper and under Lip, in particular, are three Pair; *Elevatores Labii superioris*, *Depressores*, and *Elevatores Labii inferioris*. Of these in their Order.

ELEVATOR LABII SUPERIORIS.

This arises fleshy from the fore Part of the fourth Bone of the upper Jaw, immediately above the *Elevator Labiorum*, and descends obliquely under the Skin of the upper Lip, joining with its Partner, in a middle Line, from the *Septum Nasium* to its Termination in the *Sphincter Labiorum*.

DEPRESSOR LABII INFERIORIS.

It is difficult to determine, whether this be one only or two Muscles. It lying between the *Depressores Labiorum* (describ'd above) possesses that Part of the lower Jaw call'd the Chin, and, ascending with a direct and transverse Order of Fibres, is inserted into the under Lip, in depressing of which it turns it outwards.

ELEVATOR LABII INFERIORIS.

This Muscle, with its Partner, lies within the lower Lip. These we first observed some time since. They arise fleshy from the inferior Part of the Gums of the lower Jaw, which belong to the Dentes Incisorii, and descend directly to their Implantations in the inferior Part of the Skin of the Chin: Hence it is, when these act, they make divers Indentations in the Chin, as may be observed in living Persons when the lower Lip is drawn upwards. *Cowper.*

For the Muscles of the Ear, see **AURIS**:

For the Muscles of the Tongue and Os Hyoide, see **LINGUA**.

As Winslow, from whom I have taken the Descriptions of the upper Jaw, enumerates the Bones in a manner different from some other Anatomists, in order to the understanding the Origins and Insertions of the Muscles, as specified by Cowper, it is necessary to remark, that

The first Bone of the upper Jaw is the *Os Mali*, or *Zygoma*.

The second is the *Os Maxillare*.

The third is the *Os Unguis*.

The fourth is the *Os Nasi*.

The fifth is the *Os Palati*.

The MUSCLES which move the lower Jaw.

These Muscles are ten in Number, five on each Side, which are the

Masseter.

Temporalis.

Pterygoidæus major five internus.

Pterygoidæus minor five externus.

Digastricus.

To these some add the two Musculi Cutanei, or Quadrati Genæ, but very improperly.

MASSETER: Tab. 10. Fig. 5.

This is a very thick fleshy Muscle, situated at the back Part of the Cheek. It seems to be made up of three Portions, like a *Triceps*, one large and external Portion, one middle, and one small and internal.

The external Portion is fix'd by one tendinous Extremity to all the inferior Edge of the Os Malæ, and a little to the neighbouring Parts of the Os Maxillare, and Apophysis Zygomatica of the Temporal Bone. From thence it runs down obliquely backward, being wholly fleshy, and is inserted by the other Extremity, in the rough Impression on the Outside of the Angle of the lower Jaw.

The middle Portion is fix'd by one End to the lower Edge of the whole *Apophysis Zygomatica* of the Temporal Bone, and a very little to that of the *Os Malæ*. From thence it runs down a little obliquely forward, in an opposite Direction to the first Portion, under which it crosses; and is inserted, by its other Extremity, in the Middle of the Inside of the Branch of the lower Jaw, near the Insertion of the external Portion, with which it mixes.

The third Portion, which is least and most internal, is fix'd by one Extremity to the inner Labium of the lower Edge, and also to the Inside of almost all the Zygomatic Arch; and, by the other, to the Root or Basis of the Coronoid Apophysis, where it mixes, wholly fleshy, with the Insertion of the middle Portion. This third Portion, by its Nearness of Situation,

seems

seem. Sometimes to be an Appendix of the Temporal Muscle.

The *Ductus Salivaris superior* passes over this Muscle, and this is observed, by *Couper*, to be a provident Contrivance of Nature to accelerate the Motion of the *Saliva* during Mastication.

TEMPORALIS, or CROTAPHITES. Tab. 10. Fig. 4.

This is a broad flat Muscle, resembling a Quarter of a Circle in Figure. It occupies all the semicircular or semioval Plane of the lateral Region of the Cranium, the temporal Fossa, and Part of the Zygomatic Fossa. From this Situation it has its Name of Temporalis, and likewise that of Crotaphites, which is sometimes given to it.

To conceive justly the Insertions of this Muscle, it must be observed, that, thro' all the Circumference of the semicircular Plane already mentioned, the Pericranium is divided into two Laminae. The internal Lamina, sometimes taken for a particular Periosteum, covers immediately all the bony Parts of this Region. The external Lamina, separated from the other, is spread out like an Aponeurotic or Ligamentary Expansion, by means of its Adhesions to the external angular Apophysis of the *Os Frontis*, to the posterior Edge of the superior Apophysis of the *Os Maxillae*, and to the upper Edge of all the Zygomatic Arch, all the Way to the Root of the Mastoide Apophysis.

This Muscle is composed of two Planes of fleshy Fibres, fixed to the two Sides of a tendinous Plane nearly of the same Breadth with them, by which they are separated, it being spread quite through the Muscle like a concealed middle Tendon; as may be plainly seen by dividing the Muscle all the Way to the Bone, according to the Direction of its Fibres. The Body of the Muscle thus formed is inclosed between the two Aponeurotic or Ligamentary Laminae, in the following Manner.

The internal fleshy Plane is fixed, by a broad radiated Insertion, to all the semicircular Plane of the Cranium, by the Intervention of the internal Lamina of the Periosteum.

Thus it is fixed to the lateral external Part of the *Os Frontis*, and to its external angular Apophysis, to the lower Part of the *Os Parietale*, to the squamous Portion of the *Os Temporis*, to the great Ala, or Temporal Apophysis of the Sphenoidal Bone, by which the Temporal Fossa is formed; and a little to the Backside of the internal Orbital Apophysis of the *Os Maxillae*, which forms Part of the Zygomatic Fossa.

Through all this Space the fleshy Fibres contract gradually, by means of their Adhesions to the Tendinous Plane, which diminishes in Breadth, and increases in Thickness, in proportion as it descends.

The external fleshy Plane is fixed in the same radiated Manner to the Inside of the external Lamina of the Pericranium, from the great semicircular Circumference, all the Way to a small Portion of this Lamina more or less semicircular, above its Insertion in the Zygomatic Arch. Here the fleshy Fibres leave the external Lamina, and the void Space thus formed between the small semicircular Portion and the fleshy Fibres is commonly filled with Fat.

Through the whole Extent of this Insertion the fleshy Fibres gradually contract, and adhere to the Outside of the middle Tendinous Plane, in the same manner as the internal Plane adheres to the other Side, but in a contrary Direction.

The middle Tendinous Plane, continuing to contract by Degrees, ends at length in a very considerable Tendon, the Extremity whereof, which is in a manner double, incloses the Coronoid Apophysis of the lower Jaw, being strongly inserted in the Edges and Inside thereof, and also a little in that Part of the Bone which lies between the two Apophyses. The internal Portion of this Insertion is thicker, and has more fleshy Fibres, than the external, which is almost wholly Tendinous or Aponeurotic.

There is another small Plane reckoned by some to be a Portion of this Muscle; which, in reality, is no more than the third Portion of the Masseter, as may easily be perceived by sawing off the Zygomatic Arch at the two Ends, and then turning it down; for this small Muscle parts from the Temporalis without Difficulty, and continues to adhere to the Masseter.

The Use of the Temporal Muscles and Masseters is, to draw the lower Jaw upwards in Mastication, or the Formation of Sounds, and Modulation of the Voice. *Couper* says, he could never observe those dreadful Symptoms which Authors relate to ensue from Wounds of the Temporal Muscle, tho' he has sometimes seen it divided, in order to apply the Trapan in Fractures of the Cranium.

PTERYGOIDEUS MAJOR SIVE INTERNUS.

This Muscle lies on the Inside of the lower Jaw, almost in the same Manner as the Masseter does on the Outside, being of the same Figure with that Muscle, only smaller and narrower.

It is fix'd above in the Pterygoide Cavity, principally to the Inside of the external Ala of the Apophysis Pterygoide. This Insertion is wholly fleshy, and from thence the Muscle has its Name.

It runs down obliquely toward the Angle of the lower Jaw, and is inserted a little Tendinous in the Inequalities on the Inside thereof, opposite to the Insertion of the Masseter. It might be called Masseter Internus.

When the Pterygoideus Major on either Side acts, it draws the Jaw to the contrary Side. If both act together, they assist the Temporal Muscles and Masseters in drawing up the lower Jaw.

PTERYGOIDEUS MINOR SIVE EXTERNUS.

This is an oblong fleshy Muscle, much smaller than the other, and situated almost horizontally between the Outside of the Apophysis Pterygoide, and the Condylode Apophysis of the lower Jaw, the Subject being considered in an erect Posture.

It is fixed by one Extremity to the Outside and Edge of the outer Ala of the Pterygoide Apophysis, filling the Fossula which is at the Basis of this Apophysis, near the Basis of the Temporal Apophysis of the Sphenoidal Bone.

From thence it runs backward, and a little outward, into the void Space between the two Apophyses of the lower Jaw, and is inserted anteriorly in the Condylode Apophysis, at a small Fossula immediately under the inner Angle of the Condyle. It is also fixed to the Capsular Ligament of the Joint.

When this and its Partner act, they draw the lower Jaw forwards, and force the Teeth of the inferior Jaw beyond those of the superior, as *Fallopis*, their first Describer, observes.

DIGASTRICUS.

This is a small long Muscle, situated laterally between the whole Basis of the Jaw and the Throat. It is fleshy at both Extremities, and tendinous in the Middle, as if it consisted of two small Muscles joined endwise by a Tendon; and from thence it is called *Digastricus* in Greek, and *Biventer* in Latin.

It is fixed by one fleshy Extremity in the Sulcus of the Mastoide Apophysis. From thence it runs forward, inclining towards the *Os Hyoides*, where the first fleshy Body ends in a round Tendon, which is connected to the lateral Part, and Root of the Cornua of that Bone, by a kind of Aponeurotic Ligament, and not by a Vagina or Pulley, as appears at first Sight, because of its Passage by the Extremity of the Musculus Styloglossus; of which under the Article of its Name.

Here the Tendon is incurvated, and presently ends in the other fleshy Body, which is fixed immediately above the internal Labium of the Basis of the Chin near the Symphysis, in a small unequal Depression. This Insertion is broader than that of the other Extremity. Sometimes the anterior Insertions of the two Digastrici touch each other, and sometimes several of their Fibres cross each other considerably. *Winslow*.

The middle Tendon of this Muscle, and its Partner, passing through the Aponeurotic Ligament, at the lateral Part and Root of the Cornua of the *Os Hyoides*, is a wonderful Contrivance of the Author of Nature to render them capable of pulling the lower Jaw-bone down, which, had their Progress been direct from their Originations, they could not have performed. Nor are there any Processes, whether of the Vertebrae of the Neck, or the neighbouring Parts, that could give an Origination to these Muscles below their Insertions, as in some Quadrupeds: Wherefore the Divine Architect of human Bodies has placed this Aponeurotic Ligament to serve as a sort of Pulley below their Terminations, whereby they perform their designed Office. Hence Deglutition is hindered, when these Muscles are in Action, they then preventing the Ascent of the Tongue and Larynx. Neither can we at that time draw the lower Jaw down, because the Centre of Direction is pulled upwards. Wherefore we are obliged on that Occasion to keep the Jaws close together. But in Dogs, and other voracious Animals, who have these Muscles arising from the transverse Processes of the first Vertebra of the Neck, these Actions are not dependent; whence it is they devour their Aliment so quick.

There are several Muscles, besides those already mentioned, which are inserted in the Head, and consequently are subject to be affected in Wounds of that Part. The first of these is the Cucullaris, which is inserted in the lower Part of the Occiput, as is exprest, *Tab. 11. Fig. 2.*

The Mastoidei Antiores, or Sternomastoidei, are inserted into the Mastoide Apophyses. See *MASTOIDEUS*.

The Splenii (*Tab. 11. Fig. 3.* exprest only on the Right Side) are inserted in the upper Part of the Mastoide Apophyses, and along the adjacent curve Portion of the transverse Ridge of the Occipital Bone. See *SPLENIUS*.

The Complexus is inserted by a broad fleshy Plane in the posterior Part of the superior transverse Line of the Occipital Bone, near the Crista or Spine of that Bone. At its Insertion it joins, by one Edge, the Complexus of the other Side, and by the other, the Splenius, which covers it a little. See *COMPLEXUS*.

The Complexus Minor, or Mastoidæus Lateralis, is inserted in the posterior Part of the Apophysis Mastoidæus, where it is covered by the Splenius. See COMPLEXUS MINOR.

The Rectus major is inserted in the posterior Part of the inferior transverse Line of the Occipital Bone, at a small Distance from the Crista, being a little covered by the Obliquus Superior. See RECTUS MAJOR.

The Rectus minor is inserted immediately under the posterior Part of the inferior transverse Line of the Occipital Bone, in a superficial Fossula on one Side of the Crista Occipitalis. See RECTUS MINOR.

The Obliquus superior five minor is inserted in the transverse Line of the Occipital Bone, almost at an equal Distance from the Crista and the Mastoidæ Apophysis, between the Rectus minor and Complexus minor, which covers it. See OBLIQUUS SUPERIOR.

The Rectus anticus longus is inserted in the fore Part of the lower Side of the Apophysis Basilaris, or great Apophysis of the Occipital Bone. See RECTUS ANTICUS LONGUS.

The Rectus anticus brevis is inserted in a transverse Impression in the lower Side of the Apophysis Basilaris of the Occipital Bone, immediately before the Condyle on the same Side, being covered by the Rectus anticus longus. See RECTUS ANTICUS BREVIS.

The Transversalis anticus primus is inserted in a particular Impression between the Condyle of the Occipital Bone, and the Mastoidæ Apophysis of the same Side, behind the Apophysis Styloides, and under the Edge of the Jugular Fossula. See TRANSVERSALIS ANTICUS PRIMUS.

In order to understand perfectly what is said concerning Disorders of the Head from an external Cause, it is indispensably necessary to form a just Idea of the Membranes surrounding the Brain, which I am sensible no Description can give without an Inspection of the Parts themselves. But the Person who has once seen them, will reap some Advantages from the following Account of them.

The Meninges, or Membranes of the Brain, are two in Number, one of which is very strong, and lies contiguous to the Cranium; the other is very thin, and immediately touches the Brain. The first is named Dura Mater, the second Pia Mater; which is again divided into two, the external Lamina being termed Arachnoides, the internal retaining the common Name of Pia Mater.

DURA MATER.

The Dura Mater incloses the Brain, and all its Appendages. It lines the Inside of the Cranium, and supplies the Place of an internal Periosteum, being spread in all the Holes and Depressions, and covering all the Eminences in such a manner as to prevent their being hurtful to the Brain.

In describing the Dura Mater, we must take Notice,

1. Of its Composition;
2. Its Adhesion to the Cranium;
3. Its Folds or Septa;
4. Its Productions, Vessels, and Nerves.

The Dura Mater is made up of two Laminæ, adhering very closely together, the Fibres of both crossing each other obliquely. By rubbing any Part of this Membrane between the Fingers, we easily perceive the two Laminæ sliding a little upon each other. Their Texture is very close and strong, appearing to be partly ligamentary, and partly tendinous.

The Dura Mater sticks closely to the Cranium by a great Number of Filaments of the external Lamina, which enter the Pores of the Bones principally at the Sutures, both above and below; and, by penetrating these Joints, they communicate with the external Periosteum. These Filaments are, for the most part, small Vessels, which being broken in separating the Dura Mater from the Skull, a great Number of red Points appear on the external Surface of that Membrane.

It adheres much more to the whole inner Surface of the Cranium in Children and young Persons, than in those of an advanced Age, the Filaments becoming then very small, being compressed by the Contraction of the bony Pores; and consequently they are more easily broke by any Force applied to them.

These Adhesions are formed entirely by the external Lamina. The internal Lamina is very smooth, and polished on the Inside, which is also continually moistened by a fine Fluid, discharged thro' its Pores, much in the same manner as in the Peritonæum and Pleura.

The Folds of the Dura Mater are made by the internal Lamina; and three of them form particular Partitions, one of which is superior, and represents a kind of Mediastinum between the two great Lobes of the Brain. The second is in a middle Situation, like a Diaphragm between the Cerebrum and Cerebellum. The third is inferior between the Lobes of the Cerebellum. The superior Partition is longitudinal, in Form of a Scythe, from whence it is termed the Falx of the Dura Mater; and it may likewise be called Septum Sagittale, Verticale, or Mediastinum Cerebri. The middle Partition is

transverse, and might be called the Floor of the Cerebrum; the Diaphragm of the Brain, or the Tent of the Cerebellum. The inferior Partition is very small, and runs down between the Lobes of the Cerebellum; on which Account it may be term'd either simply Septum cerebelli, or Septum occipitale minus; the middle Partition being considered as the Septum occipitale majus.

The superior or vertical Partition, called the Falx of the Dura Mater, is a long and broad Fold or Duplicature of the internal Lamina, reaching from the Edge of the Crista Galli, along the Sagittal Suture, to the Middle of the transverse Partition, which it joins in such a manner, as that the lateral Laminæ of the Falx are continuous, on each Side, with the neighbouring Portions of the superior Lamina of the middle Partition.

It is broader where it joins the middle Partition than at the Os Ethmoides, and it is thicker at that Edge which adheres to the Cranium than at the other, which lies loose, and is very sharp; and from this Resemblance to a Scythe it had the Name of Falx.

The transverse or middle Partition is fixed to the Os Occipitis, along the Grooves of the lateral Sinuses, and those of the great Angles of the Apophyses Petrosæ, all the Way to the posterior Clinoid Apophyses of the Os Sphenoidale. By this Situation it forms a sort of Floor, Tent, or shallow Vault, on the fore Part of which is a large Notch, almost of an oval Figure.

This Partition divides the Cranium into two Cavities; one large or superior, and the other small or inferior, which communicate together by the great oval Notch. It is formed by a particular Fold, and a very broad Membrane of the internal Lamina of the Dura Mater; and in the natural State it is very tense, because of its Union, or rather Continuity, with the Falx.

This Union or Continuity of these two Partitions keeps them both very tense, so that the middle Partition is capable of sustaining a considerable Weight without sinking downward; and the Falx is able to resist lateral Pressures, without giving way to the Right Hand or to the Left.

We may be convinced of this reciprocal Tension by, first, touching these two Partitions in their natural State; and, again, after they have been cut one after the other, according to their Breadth, or rather after having cut in this manner the Falx in one Subject, and the transverse Partition in another; for, as soon as the Falx is cut, the other will be perceived immediately to lose its Tension and Firmness; and the same thing will be observed in the Falx, as soon as we cut the Septum Medium, or transverse Partition.

The small Occipital Partition is both very short and narrow, It runs down from the Middle of the transverse Partition to the Edge of the great Occipital Hole, being fixed to the internal Spine of the Occipital Bone. It is formed by a Fold and Duplicature of the internal Lamina of the Dura Mater, in the same manner as the other two, and distinguishes the lower Part of the Occipital Cavity of the Cranium into two lateral Parts. In some Subjects this Partition is double, answering to the double Spine of the Occipital Bone.

Besides these large Folds, there are two small lateral ones, on each Side of the Sella Sphenoidalis, or Turcica, each running from the posterior to the anterior Clinoid Apophysis on the same Side. These two Folds, together with the anterior and posterior Parts of the Sella Sphenoidalis, form a small Fossula, in which the Pituitary Gland is lodged. There are likewise two anterior Folds, at the Edges of the Sphenoidal, or superior Orbital Fissures, which augment the Depth of the middle Fossula of the Basis of the Cranium. Thus we have seven Folds of the internal Lamina of this Membrane, three large, and four small, which may be termed internal Productions or Processes of the Dura Mater.

The Elongations of the Dura Mater are Productions of both Laminæ, which go beyond the general Circumference, and pass out of the Cranium, thro' the Openings therein; and in this they differ from the Folds which are formed entirely by one Lamina, and do not go out of the Skull. They may be nam'd the external Productions of the Dura Mater.

The most considerable of these Elongations passes thro' the great Occipital Foramen, and runs down the common Canal of the Vertebrae in form of a Tube, lining the Inside of that Canal, and inclosing the spinal Marrow, by the Name of the Dura Mater of that Marrow. The other Elongations accompany the Nerves out of the Cranium in form of Vaginae. These are more numerous than the nervous Trunks which are reckoned by Pairs. Thus for the Olfactory Nerves there is the same Number of distinct Vaginae, as there are Holes in the Lamina Ethmoidalis; and some Nerves are accompany'd by several Vaginae thro' one Hole, as those of the Ninth Pair.

There are two particular Elongations which form the Periosteum of the Orbits, together with the Vaginae of the Optic Nerves. These Orbital Elongations go out by the Sphenoidal or superior Orbital Fissures, and, enlarging in their Passage,

and the whole Cavity of the Orbits, at the Edges of which they communicate with the Pericranium and Periosteum of the Face. They communicate likewise thro' the Spheno-maxillary or inferior Orbital Fissures with the Pericranium of the Temporal and Zygomatic Fossæ; and by these Communications we may explain the Accidents which happen to these Parts in Wounds of the Head.

The Elongations of the Dura Mater, which accompany the Blood-vessels through the Foramina of the Cranium, unite with the Pericranium afterwards. Such, for Instance, are the Elongations which line the Fossulæ of the Foramina Lacera or Jugularia, and the bony or carotid Canals of the Apophysis Petrosa.

The Vessels of the Dura Mater are Arteries, Veins, and Sinuses. The Arteries in general are distinguished into anterior, middle, and posterior, and come from the Carotids and Vertebrae on each Side. The external Carotid sends a Branch through the spinal Hole of the Os Sphenoidale, which is the middle Artery of the Dura Mater, and is called, by way of Eminence, *Arteria duræ matris*. It is divided into a great Number of Branches, which are plentifully dispersed thro' the Substance of the external Lamina as high as the Falx, where these Ramifications communicate with their Fellows from the other Side. The Impressions of this Artery are seen on the Inside of the Parietal Bones, the anterior and lower Angle of which, instead of a simple Impression, contains a Canal for the Passage of a Trunk or Branch of this Artery; on which Account several Accidents happen in Fractures of the Skull.

The external Carotid sends another small Branch through the Corner or small End of the Sphenoidal or superior Orbital Fissure, where there is sometimes a little Notch on purpose. This Branch is the anterior Artery of the Dura Mater, and it gives off Ramifications in the same manner as the former, with which it communicates, but its Ramifications are not so numerous. The internal Carotid, as it enters the Cranium, gives off a small Branch to the Substance of the Dura Mater.

The two Vertebral Arteries enter by the great Occipital Foramen, and unite in one Trunk on the anterior or Sphenoidal Apophysis of the Occipital Bone. Immediately afterwards they enter the Substance of the Dura Mater on both Sides, each of them by one or two Branches. These are the posterior Arteries of the Dura Mater; and they communicate by some Ramifications with the middle or spinal Artery above-mentioned.

The Dura Mater contains in its Duplication several particular Canals, into which the venous Blood, not only of that Membrane, but of the whole Brain, is convey'd. These Canals are termed Sinuses; and some of them are disposed in Pairs, others in uneven Numbers; that is, some of them are placed alone in a middle Situation, others are disposed laterally on each Side of the Brain. The most antient Anatomists reckon'd only four, to which we can now add four times as many.

These Sinuses are in the Duplication of the Dura Mater, and their Cavities are lined on the Inside by particular very fine Membranes. They may be enumerated in this manner:

The great Sinus of the Falx, or superior Longitudinal Sinus, which was reckoned the first by the Antients.

The two great Lateral Sinuses, the second and third of the Antients.

The Sinus called Torcular Herophili, the fourth of the Antients.

The small Sinus of the Falx, or inferior Longitudinal Sinus.

The posterior Occipital Sinus, which is sometimes double.

Two inferior Occipital Sinuses, which form a Portion of a Circle, and may likewise be called the inferior Lateral Sinuses.

Six Sinus Petrosi, three on each Side; one anterior, one middle or angular, and one inferior. The two inferior, together with the Occipital Sinuses, complete a circular Sinus round the great Foramen of the Occipital Bone.

The inferior transverse Sinus.

The superior transverse Sinus.

Two circular Sinuses of the Sella Sphenoidalis; one superior, and one inferior.

Two Sinus cavernosi, one on each Side.

Two Orbital Sinuses, one on each Side.

All these Sinuses communicate with each other, and with the great Lateral Sinuses, by which they discharge themselves into the internal Jugular Veins, which are only Continuations of these lateral Sinuses. They likewise unload themselves partly into the Vertebral Veins, which communicate with the small Lateral or inferior Occipital Sinuses, and partly into the external Jugular Veins, by the Orbital Sinuses which communicate with the Angular, Frontal, Nasal, and Maxillary Veins, as the Lateral Sinuses likewise communicate with the Occipital Veins.

Thus the Blood which is carried to the Dura Mater by the external and internal Carotids, and by the Vertebral Arteries, is returned to the Heart by the external and internal Jugular and Vertebral Veins; so that when the Passage of the Blood is obstructed in any particular Place, it finds another Way by

virtue of these Communications, tho' not with the same Ease. This Observation is of Importance with respect not only to Obstructions, but to the different Situations of the Head.

The great Sinus of the Falx reaches from the Connection of the Ethmoidal Crest with the Os Frontis, along the upper Edge of the Falx, all the Way to the posterior Edge of the transverse Partition, where it ends by a Bifurcation in the great Lateral Sinuses. It is very narrow at its anterior Extremity, and from thence becomes gradually wider all the Way to its posterior Extremity.

The Cavity of this Sinus is not cylindrical, but triangular, having, in a manner, three Sides; one superior, parallel to the Cranium, and two lateral, inclined to the Plane of the Falx. The upper Side is formed by the external Lamina of the Dura Mater, and thro' the Middle of its Breadth a kind of fine Raphe or Suture runs from one End to the other.

The two lower or lateral Sides are Productions of the internal Lamina, which, having parted from the external, are inclined towards each other, and then unite, forming first the Sinus, and afterwards the Duplication of the Falx. This Sinus is lined internally by a fine proper Membrane, which forms likewise a kind of Raphe or Suture along the Bottom of the Sinus, that is, along the Union of the two lateral Sides.

In this Sinus we observe several Openings, and several Ligamentary Fræna. The Openings are Orifices of Veins, the smallest of which belong to the Dura Mater, the largest to the Brain. The Veins of the Brain enter the Sinus, for the most part, obliquely from behind forward, after they have run about a Finger's Breadth in the Duplication of the Dura Mater.

It has been thought, that the Arteries of the Dura Mater discharged themselves immediately into the Sinuses, because Injections made by the Arteries, or a Hog's Bristle thrust into them, have been found to pass into these Sinuses. But, on a more close Examination, it has been discovered, that the Injections passed from the Arteries into the Veins, and from thence into the Sinuses, thro' the small Orifices already mentioned; and that the Hog's Bristle pierced the Sides of the Artery, which, near the Sinuses, are very thin.

This Mistake gave Rise to another, that the Dura Mater had no Veins; and what confirmed it was, that the Arteries of the Dura Mater cover the Veins so entirely, that the Edges of the Veins are hardly perceivable on either Side of the Arteries. There are, however, some Places where the Veins being broader than the Arteries, their two Edges are seen on each Side of the Arteries like Capillary Vessels. These Veins are, for the most part, Branches of the Sinuses, and the small Trunks of some of them open into the Head of the internal Jugular Vein. We may easily be satisfy'd, that the Arteries on both Sides of the Dura Mater communicate with each other above the great Sinus of the Falx, either by injecting, or blowing into them.

The internal Fræna of this great Sinus appear to be tendinous, and to be designed to prevent the too great Dilatation of the Sinus by the Blood. They vary, however, in different Subjects, and do not always reach from one Side to the other. It has been pretended, that Glands have been found there; but we ought to take care not to take for such certain small Corpuscles which are the Products of Diseases.

The inferior Sinus of the Falx is situated in the lower Edge of its Duplication, being very narrow, and, as it were, flattened on both Sides. It communicates immediately with the fourth Sinus of the Antients; and, in some Subjects, seems even to be a Continuation thereof. It likewise communicates with the great or superior Sinus, by small Veins which go from one to the other, and with the Veins of the Cranium by the same means.

The lateral Sinuses represent two large Branches of the superior Longitudinal Sinus, one going to the Right Hand, the other to the Left, along the great Circumference of the transverse Partition, all the Way to the Basis of the Apophysis Petrosa of the Temporal Bone; from whence they run down, having first taken a large Turn, and then a small one; and, being strongly fixed in the lateral Grooves of the Basis of the Cranium, they follow the Course thereof all the Way to the Foramina Lacera, and Fossulæ of the Jugular Veins.

They do not always arise by an equal and symmetrical Bifurcation of the superior Longitudinal Sinus; for, in some Subjects, one of the lateral Sinuses appears to be a Continuation of the longitudinal, and the other to be a Branch from it. This Variety may happen on either Side; and we sometimes find one of those Sinuses higher or lower, larger or smaller, than the other.

The Cavity of these lateral Sinuses is likewise triangular, and furnished with a proper Membrane, and with Fræna; and it has also the small venal Openings, which indeed are common to it, not only with the longitudinal Sinus, but with most part of the others. The posterior or outer Side of this Cavity is formed by the external Lamina of the Dura Mater, and the other two by the internal Lamina.

As these two Sinuses go out by the posterior Portions of the Openings of the Basis of the Cranium called Foramina Lacera, they

they are dilated into a kind of Bag, proportioned to the Fossulae of the Jugular Veins, where they terminate in these Veins.

Near the Concourse of the superior longitudinal and lateral Sinuses, we observe an Opening, (sometimes double) which is the Orifice of a Sinus situated along the Union of the Falx and transverse Partition. It does not always end directly at the lower Part of the superior Sinus, but sometimes opens at the Beginning of one of the lateral Sinuses, especially when the Bifurcation is not equal; and in this Case it often terminates in that lateral Sinus, which appears like a Branch from the common Trunk of the superior and other lateral Sinus.

This Sinus has been named Torcular Herophili, from its first Discoverer. Its Diameter is but small, and it forms a kind of Bifurcation with the inferior longitudinal Sinus, and with a Vein of the Cerebrum, which is sometimes double, called Vena magna Galeni.

The cavernous or lateral Sinuses of the Os Sphenoides are Reservoirs of a very particular Kind, containing not only Blood, but considerable Vessels and Nerves. These Reservoirs are within fill'd with a spongy or cavernous Substance full of Blood, much like that of the Spleen, or Corpus cavernosum of the Urethra.

We observe some nervous Filaments, which go to the Dura Mater, from the Trunk of the Fifth Pair, at the Entry of the cavernous Sinus; and from the common Trunk of the Eighth Pair, and Nervus Accessorius, or Spinalis, as they pass thro' the Foramen Lacerum. The small Tubercles, sometimes found on the lateral Sides of the longitudinal Sinus of the Falx, require farther Examination before we can determine any thing about them. The whole Inside of the Dura Mater is moistened in the same manner as the Peritonæum and Pleura.

The prominent Fibres intersecting each other in different Manners, which appear on the Inside of the Dura Mater, especially near the Falx and transverse Partition, and which have been taken for a kind of fleshy Fibres, seem to be only ligamentary and elastic. The universal Adhesion of this Membrane to the Cranium proves, that it can have no particular Motion, and consequently that such fleshy or muscular Fibres would be altogether useless. This Adhesion was plainly demonstrated by Vesalius and Riolanus, and afterwards by Roombuyse.

PIA MATER.

This Membrane surrounds the whole Mass of the Brain more particularly than the Dura Mater. It adheres very closely to the Brain, and is connected to the Dura Mater only by the Veins which open into the Sinuses, as has been already said.

The Pia Mater is made up of two very fine Laminæ, the outermost of which covers pretty uniformly all the convex Surface of the Brain, and lines in the same manner all the concave or inner Surface of the Dura Mater. The internal Lamina forms, by a great Number of Folds and Duplicatures, a great Number of Partitions, which insinuate themselves into all the Folds and Circumvolutions, and between the different Strata of the Cerebrum and Cerebellum.

The two Laminæ of the Pia Mater are not so closely united as those of the Dura Mater, being connected only by a cellular Substance, which accompanies them through their whole Extent, except at some Places of the Basis of the Cerebrum, where the internal Lamina continuing its Insertions, the external remains uniformly stretched over the prominent Parts, the Interstices of which are entirely separated from the other Lamina, without any cellular Substance between them. These separate Portions of the external Lamina have made it been looked upon as a third Membrane of the Brain, distinct from the Pia Mater; and it has been named Membrana Arachnoides, from its Resemblance to a Cobweb in Delicacy of Texture.

In each of these Laminæ of the Pia Mater we discover another kind of fine Duplicature, which contains a Number of Vessels; but these small Vessels are hardly perceivable without the Help of an Injection, or of a great Inflammation. The cellular Substance does not only accompany the two Laminæ thro' their whole common Extent, in the manner already said, but also the internal Lamina in particular, thro' all the Duplicatures and Partitions. This we discover by blowing through a small Pipe, cautiously introduced between the two Laminæ, so as not to offend any of the Parts near it. *Winflow.*

Before the Reader proceeds to the ensuing Detail of Disorders incident to the Head from an external Cause, I should advise him to read the Article CEREBRUM, which he is to consider as the Sequel of this Part of the Article CAPUT.

WOUNDS of the HEAD.

No Wounds can possibly be of a more formidable and terrible Nature than those of the Head, since the least Injury done to the Brain sometimes proves the fatal Cause of immediate Death. Besides, in those Wounds of the Head which do not penetrate the Skull, but are received by a gentle Fall, or a Blow with blunt Instruments, some of the minute internal Veins and Arteries are sometimes broken, and, by discharging their Con-

tents on the Brain, excite the most melancholy Symptoms, and often put a speedy End to Life. For this Reason Wounds of the Head, apparently the most light and superficial, are never to be looked upon as inconsiderable, but always treated with the greatest Care and Circumspection.

In treating Wounds of the Head, 'tis the Surgeon's Duty to consider,

1. What Parts of it are wounded; and,
2. In what manner the Wound has been inflicted.

For Wounds may be made in the Head either by the Puncture or Cutting of sharp and pointed Instruments, or by such as are blunt; by Blows, for Instance, Contusions, the Throwing or the Falling of Bodies, and by Bullets. Wounds of this last Species are generally far more severe and dangerous than those inflicted by sharp and cutting Instruments.

As for the Parts of the Head wounded, they may either be the common Integuments, or, together with these, the fleshy Parts of the Face, or the Pericranium itself, or the Temporal Muscles, or the Cranium. Besides these, the internal Parts of the Head may also be injured; such as the Dura and Pia Mater, the Cortical or Medullary Substances of the Brain, as also its Ventricles. In some Wounds of the Head the Cranium is cut, and in others it is fractur'd, shatter'd, and contus'd; for which Reason we shall here reduce the Wounds of the Head to two Classes; those inflicted on the Face, and those which either injure, or entirely penetrate, the Cranium.

WOUNDS of the FACE.

Since then the Parts of the Face are of the more noble and necessary Kind, two Things are carefully to be adverted to in treating its Wounds. The first is, that the Uses of the respective Parts wounded may be preserved; and, secondly, that as beautiful and comely Cicatrices as possible may be induced. But since there are various Parts of the Face, each of which calls for a different Method of Treatment, we shall at present consider these Parts separately, and by themselves.

In almost all Wounds, then, of the Forehead, we are first to cleanse the Wound from the Blood, then to anoint it with some vulnerary Balsam, such as the Balsam of Capivi, or that of Peru, or some other of a like Nature; after which we are, with narrow Shreds of adhesive Plaster, to bring the Lips of the Wound into Contact, and apply some vulnerary Plaster over all. But, when the Wound is of the larger Kind, these Plaisters alone are not sufficient for producing an equable and beautiful Cicatrix; for which Reason, that the Wound may be the more commodiously conglutinated, Powder of *Sarcocolla*, or a Powder prepared of Comfrey-root, Gum Tragacanth, and Gum Arabic, are to be sprinkled upon it, before the above-mentioned Plaisters are laid on; and upon these proper Compresses, and tight Bandages, are to be applied. Nor is it proper to use Suture in these or any other Wounds of the Face, except where it is absolutely necessary, because, by that means, the Number of Scars, and consequently the Deformity, is increased. In longitudinal Wounds of the Forehead, that uniting or incarnating Bandage represented *Tab. 23. at f.* is of singular Service for inducing an agreeable Cicatrix. But in transverse Wounds of the Forehead, where the Fibres of the frontal Muscles are so divided, that the Eye-brows hang down in a disagreeable manner, and the Skin of the Forehead cannot corrugate itself as usual, the best Method is, immediately after cleaning the Wound, to bring its Lips into Contact by one or two Stitches, and apply some vulnerary Powder or Balsam, using over all conglutinating Plaisters, and proper Bandage, and injoining Rest to the Patient at the same time: For it sometimes happens, especially in young Constitutions, that the cut Fibres of the Muscles are again united and consolidated by means of an accurate Dressing of this kind, without any Suppuration. If violent Effusions of Blood should happen, they are first to be suppressed with Linen Cloths, Compresses, and tight Bandage; but, at the next Dressing, the Wound is to be washed with warm Wine, and its Lips are to be brought into Contact with adhesive Plaisters.

The Wounds of the Eye-brows are to be treated in the same manner with those of the Forehead; only in these we must take care, lest any violent Inflammations should happen, which may prove prejudicial to the Eyes and Sight. For this Reason every thing of an acrid Nature, either in Meat or Drink, ought to be abstained from by the Patient; Venesection, in case of a Plethora, ought to be celebrated; and Compresses, dipt in warm Spirit of Wine, to be applied to the Wound, with a Plaster over them. But if the Eye-brows are quite divided by a large Wound, it seems necessary to use some kind of Suture, to dress the Wounds with vulnerary Balsams, to apply a Plaster of the same Quality, and so to fix the Eyes with some proper Bandage, that they may not easily move; for, when these Precautions are neglected, the Eyes are generally very much disfigured.

Large Wounds, either of the superior or inferior Eye-lids, are, for the most part, with great Difficulty conglutinated, and that not only by reason of the Tenderness of the Parts themselves, but also on account of the large Quantity of Humours, which

which render the Eyes continually moist. In order, therefore, to treat the Wounds of these Parts with the more Success, the Eye must be fomented gently with a Decoction of Chamomile, Hyssop, or Eye-bright, till the Effusion of Blood is stopp'd, and the Wound thoroughly cleansed. If the Wound is transverse, it ought to be forthwith stitch'd up in the Middle, with a slender Needle; and Powder of Sarcocolla, or a Powder prepared of Comfrey-root, Gum Tragacanth, and Gum Arabic, must be sprinkled upon it; or it may be anointed with Balsam of Capivi, Balsam of Mecha, or any other of a like Nature, or with Oil of Eggs; applying, after all, a Plaister of *Dia-palma*, and binding the Eyes in such a manner, that they cannot move, that the Conglutination may succeed the more happily. But where the Wound of the Eyelids is longitudinal, its Lips must be brought into Contact by more Stitches, and the Wound itself, in other respects, treated as we have now directed.

If the Eye itself is wounded, but in such a manner that none of the vitreous and crystalline Humours are discharged, the *Unguentum Alabastrinum*, or the White of an Egg, or the Mucilage of Quince-seeds, and Flea-bane, prepared with Rose-water, may be applied to the Wound twice or thrice a Day, by means of a Feather or Pledget; and the Surgeon must always apply a small Compress, sufficiently moisten'd in the following Collyrium, in order to contract the Lips of the Wound; and this Compress must be secured with proper Bandage. The Collyrium is prepared thus:

Take the Whites of two Eggs; Rose-water, two Ounces and an half; Oil of Roses, half a Dram; and of Camphire, three Grains: Shake all well together.

Nuck, in his Treatise *de Duct. oculor. aquos.* gives us an Instance of a Wound of the Eye, which he himself cured, without any Injury to the Sight, tho' some Part of the vitreous Humour was discharged. The Method he follow'd was this: He cut off the prolapsed Part of the vitreous Humour, and carefully fomented the Eye with a Collyrium, prepared of the White of an Egg, Rose-water, *Armenian Bole*, and Camphire, sufficiently agitated together. One Scruple of Gum Arabic, dissolved in an Ounce of Rose-water, is an excellent Medicine in this Species of Wounds of the Eyes. But if a violent Inflammation should happen, as it sometimes does, I have often found it proper to apply a larger Compress over the small one, dipt in warm camphorated Spirit of Wine: But, in order to mitigate the Inflammation, we must, on this Occasion, take care to keep the Patient's Body soluble, for some Days, with Potions prepared of Rhubarb, and the Pulps of Tamarinds, or any other refrigerating and laxative Substances. Then, if the Patient abounds in Blood, he is to be blooded in the Neck or Feet; all Aliments of a heating Nature are to be abstain'd from; and the Patient is to be injoin'd as much Repose as his State will admit of; for, by following these Precautions, not only the Eyes, but the Sight of the Patient, are preserved. But in Cases where the crystalline Humour, or any Part of it, has penetrated into the Wound, it is forthwith to be taken out, lest the Eye should by its means become deform'd, and subject to other terrible Infirmities.

But when the vitreous and crystalline Humour are entirely fallen from the Eye, it is very difficult, if not altogether impossible, to preserve either the Figure or the Sight of the Patient's Eye. In Cases of this Nature, then, we are first to apply Compresses, dipt in warm Wine, or Spirit of Wine; and afterwards some vulnerary Balsam, in order to conglutinate the Wound; and, to prevent the Deformity of the Face, an artificial Glass, or Silver Eye, delineated in *Tab. 28. Fig. 1.* may be introduced into the Orbit, instead of the natural Eye.

It sometimes happens, that when the *Tunica Albuginea* and *Sclerotica* are only gently wounded, the *Cornea* and the *Uvea* remaining entire, the Eye, tho' it has discharged its vitreous and crystalline Humours, is again supplied with a fresh Recruit of these Humours, and the Sight of course restored. The celebrated *Seegerus*, a Physician at *Stugart*, some time ago kindly communicated to me an Instance of a Woman, who had a Cure of this Nature happily perform'd upon her. By a careful Reflection upon this, I am induced to believe, that the Art of restoring the Eyes and Sight, even when the Humours are discharged, which *Burrhus* and *Kerkringius* so much boasted of, is not altogether chimerical; and that Sight may sometimes remain, even when the crystalline Humour is wanting, which some have of late denied.

Slight Wounds of the Nostrils have their Lips generally brought into Contact by adhesive Plaisters; but if they penetrate deep, or have so cut the transverse Cartilage, that they cannot be retain'd by Plaisters, the Skin on the Lips of the Wound must be stich'd up. But tho' it is scarce probable, that any Part of the Nostrils, when cut off, should again adhere and unite with the rest of the Nose; yet *Blegny* maintains, that this End has sometimes been obtain'd by means of Suture.

When the Bone of the Nose is depress'd by a Blow, it is proper, after restoring it to its natural Situation, to support it for some time by introducing small Silver or Leaden Pipes, such as those represented *Tab. 23.* by the Letters P. Q. R. lest fungous Flesh, sprouting up in the Nose, should block up its Passage, or induce other troublesome Symptoms. Externally any Balsam, or the Essence of Mastich, Amber, and Myrrh, or some conglutinating Powder, such as the Powder of *Sarcocolla*, or a Powder prepared of Comfrey-root, Gum Tragacanth, and Gum Arabic, may be very properly applied. The Lips of the Wound itself must be brought into Contact by conglutinating adhesive Plaisters, and secured by a four-headed Bandage.

Wounds may be made in the Lips either with sharp or obtuse Instruments, or with Bullets. The Wounds made by sharp Instruments, whether direct or transverse, are most properly conglutinated by the Application of conglutinating Plaisters; and, when they are of the larger Kind, they ought to have such conglutinating Powders, as we have already recommended, sprinkled upon them. In this Case the Patient must carefully abstain both from speaking and eating; for which Reason he is only to use such Aliments as may be sapt, soft Eggs, and other Food which requires no Mastication. But if the Wound is so large as not to be cured by these Means, Conglutination must be assisted by a proper Suture. In Wounds of the Lips made by obtuse Bodies, Falls, or Bullets, the first Thing to be done is, by some digestive Ointment, to suppurate the contused Parts; after which the Lips of the Wound, when cleansed, are to be brought into Contact by conglutinating Plaisters, or by Suture, in the same manner with the Harelip.

Wounds of the Cheeks are to be treated in the same manner, and with the same Circumspection as those of the Lips: But if any of the Salival Ducts, which derive their Name from *Steno*, and which run across the Cheek from the parotid Gland, should happen to be cut, the Wound, in this Case, can with great Difficulty, if at all, be conglutinated, before an artificial Perforation is made for the Discharge of the Saliva into the Inside of the Mouth; because the Saliva, which continually flows from the wounded Duct as from a Canal, especially in Mastication, prevents the Wound from healing.

Wounds of the external Ear are either to be united and conglutinated by adhesive Plaisters, or, if the Cartilage is quite cut, by Suture, applying, at the same time, Lint impregnated with some vulnerary Balsam, over which Compresses, and proper Bandage, must be applied. In Wounds of the Ear, near the *Meatus Auditorius*, we are, above all things, to take care, that no Blood, nor other Substance, slip in, and injure the *Membrana Tympani*: To prevent this, the internal Ear is to be carefully fill'd with Lint or Cotton.

It rarely happens, that the Tongue is pierced or cut, since it is defended from Accidents of this Nature by the Teeth and Jaws: But it is sometimes cut by the Biting of a Person's own Teeth in Epilepsies, or by violent Falls, and especially by Bullets. If, then, either by Bites, Blows, or Puncture, the Tongue is but gently wounded, so as to be left entire, either in the Middle or on both Sides, the most proper Method is, in this Case, frequently to anoint the Part affected with Oil of sweet Almonds, mix'd with Sugar-candy; or with Honey of Roses, mix'd with Oil of Myrrh *per Deliquium*.

Large and severe Wounds of the Tongue are, with Difficulty, conglutinated without the Help of Suture; so that, when the Tongue is wounded near the Gullet, it is not to be wonder'd at, if the Wound remains ever after, since the Situation of the Part renders Suture impracticable. That the Faculty of Speech may therefore sustain as little Injury as possible, we are, in the first Place, to take care, that, in large Wounds of the anterior Part of the Tongue, the Lips be commodiously joined by Suture as soon as possible, and the above recommended Medicines applied to the Wound; for conglutinating Plaisters cannot, in this Case, be applied. *Purmannus* informs us, that, for consolidating Wounds of this Kind, he successfully used a certain *Fibula* made of Silver Wire, or some other such Substance. In Wounds of the Tongue made by Bullets, the most proper Medicines are Oil of sweet Almonds, mix'd with Sugar-candy, or Honey of Roses, mix'd with Oil of Myrrh *per Deliquium*; for, in this Case, Suture is of little or no Service. It also seems necessary, that, in Wounds of this Kind, the Patient should, about the Beginning of the Conglutination, abstain both from speaking, and from such Aliments as require Manducation.

Wounds of the Palate cannot more commodiously be conglutinated, than by anointing them either with Honey of Roses alone, or with an Addition of a little *Peruvian Balsam*, and afterwards with Oil of Myrrh *per Deliquium*. These Medicines are also found to be very effectual in conglutinating other Wounds of the internal Parts of the Mouth.

See VULNUS.

Wounds of the Head injure either the external common Integuments only, or the *Periosteum*, or the *Cranium*, or the

the *Dura Mater*, or the *Pia Mater*, or the Vessels, Substance either cortical or medullary, or the Ventricles of the Brain.

We may know, that the Integuments only are injured, first, by considering the Figure of the wounding Instrument.

Thus, if the Wound is made by an Instrument with a direct or strait Edge, such as a broad Sword or a Knife, the Wound may be pretty large, and yet not penetrate very deep. But if the Point of a sharp Instrument is push'd against the Head, the external Wound may be very small, and it may, notwithstanding, sink very deep; and if the Wound is made with a Weapon which has a convex Edge, as a Scymitar or Hanger, the Wound cannot be long, without being at the same time very deep.

Secondly, by reflecting on the Force with which the Wound was inflicted.

For, if this was small, the Wound cannot be deep, and *vice versa*. This can only be learn'd from the Patient, the Spectators, or the Person who did the Mischief.

Thirdly, the Condition, and especially the Figure, of the Part injured, will afford us some Light as to the Depth of the Wound.

Thus, when the Part affected happens to be flat, and but little convex, the external Wound may be long without being very deep; but when the Wound is upon a Part which is angular, prominent, and much convex, it is plain, that it must necessarily be deep, if it is extended in Length. See what has been said concerning the Figure of the Head above. Because all Heads are not exactly shaped alike, it is necessary the Surgeon should be acquainted with the most usual Deviations from the natural Conformation. See, therefore, Tab. 9. and the Explications thereof.

Fourthly, from the Mildness of the Symptoms, which consist principally in the Depravations of the several Functions consequent to the Wound.

The more numerous, and the more violent, these Symptoms are, the greater Suspicion there is, that a proportionable Number of Parts, and those too such as are more remarkably necessary to the Perfection of Health, are injur'd. But since the Origin and Spring of the Animal Actions is lodged in the Head, it ought first to be inquir'd, whether, in consequence of the Wound, any Change is induced on these. A Vertigo, a ringing Noise of the Ears, a Vomiting of Bile, Drowsiness, a total Privation or Depravation of all, or at least some of the Senses, and an involuntary Discharge of the Urine and Excrements, are, in Cases of this Nature, inauspicious Prognostics. If none of these Symptoms appear at all, or if they are but slight, and soon go off, it is to be presumed, that the Instrument, with which the Wound was made, has not penetrated very deep. *Hippocrates*, in the fifteenth Section of his Book *de Capitis Vulneribus*, besides the Symptoms immediately subjected to our Senses, carefully enjoins the following Particulars to be inquired into, *since they are Signs or Marks of a Patient's being more or less dangerously wounded, Whether, for Instance, he is seized with a profound Sleep, a Loss of Sight, a Vertigo; or whether he falls down apoplectic*. But it must be owned, that very severe Wounds of the Head, which have penetrated into the very Substance of the Brain, are not, upon their first Reception, universally attended with these formidable Symptoms; for, in the *Journal des Sçavans*, for April 1735. we have an Account of a young Man of twenty-six Years of Age, who had the Bone of the *Bregma*, on the Right Side, transfixed in the Middle, by an Arrow pointed with Iron; but whilst the Patient endeavour'd to extract the Arrow, its wooden Shaft broke near the Iron Point, which remain'd in the Wound. Notwithstanding this, he remain'd in a tolerably easy State till the seventh Day, when, an Incision being made, the *Os Bregmaticum* was found perforated with a circular Hole, and the retain'd Point of the Arrow appear'd. Tho', by applying the Trepan twice, a large Portion of the *Cranium* was removed, and tho' the *Dura Mater* was cut away all round the Perforation in it, yet the remaining Point of the Arrow could not be extracted. The Side, opposite to that on which the Wound was inflicted, became paralytic, a plentiful Suppuration came on, and a considerable Number of fungous Excreescences appear'd on the Brain. Three Months after, the Iron Point was, by means of a Probe, felt in the Substance of the Brain: The Surgeon endeavour'd to extract it, but Convulsions, immediately seizing the Patient, put a Stop to his Design. But, about the End of the fourth Month, the Iron Point spontaneously presented itself at the Aperture of the Wound; and, being laid hold on with a proper Tenaculum or Forceps, was easily, and without any Detriment, extracted; and, twenty Days after, this Wound, apparently so dangerous, was cover'd with a Cicatrix. Many other Observations occur in Authors, which shew us, that it is

VOL. II.

sometimes adviseable to leave foreign and adventitious Bodies in Wounds, since they are afterwards happily excluded purely by the Efforts of Nature. *Hippocrates*, and the most skilful Physicians who succeeded him, suspected the Disorder to be of the more terrible Kind, if violent Symptoms appear'd, not at first, but some Days after the Wound was inflicted: Thus *Hippocrates* informs us, "That he who is wounded in the Head is in the most hopeful State, when he does not become feverish, when no Eruption of Blood appears, no Inflammation ensues, and no Pain is felt; but that, if any of these Symptoms should appear, they are the most lucky Prognostics, when they do so in the Beginning, and remain only for a short time; whereas Fevers seizing Patients wounded in the Head, on the fourth, seventh, or twelfth Day, generally prove mortal." Hence *Jacotius*, in his learned Commentaries upon the *Coacæ Prænotiones*, lays it down as a general Axiom, that Fevers, and all other Symptoms of short Continuance, which appear immediately after Wounds are inflicted, are less to be dreaded than such as last for a considerable time, or happen some time after: When, therefore, violent Symptoms appear at the Beginning, he orders the Physician to suspend his Judgment, till he sees whether they prove permanent or not. 'Tis therefore obvious, that a certain Prognostic cannot be drawn from the Violence or Slightness of the Symptoms, but that other Circumstances must be taken into the Account: But it may safely be affirm'd, that the worst is to be dreaded, if formidable Symptoms immediately appear. We are not, however, to despair in the most terrible Cases, nor to indulge a foolish Confidence, tho' in the Beginning no unfavourable Symptoms should occur.

Fifthly, Wounds of the Integuments only, are distinguish'd from others by the Sight. In Wounds, therefore, of the Head the Hair is immediately to be shaved off; and the Part is to be wash'd with equal Parts of Wine and Water, a little warm. The Wound is then, before the first Dressing, to be carefully inspected, that the Parts injured may be known, a just Prognostic form'd, and a right Method of Cure pursued.

But, among the Signs subjected to our Sight, and which inform us, whether the Bone is injur'd, or only the common Integuments, *Hippocrates*, in his Treatise on *Wounds of the Head*, advises us to observe, whether the Hairs are cut off by the Weapon, and fix'd in the Wound; and if this should happen, we may then assert, that the Bone is injur'd; for whilst the wounding Instrument, tho' sufficiently sharp, only penetrates the soft Integuments of the *Cranium*, the Hairs follow the Impression made by the Weapon, without being cut: But when the Hairs are struck against the hard Bone, they can no longer yield to the Edge of the Instrument, but must of course be cut.

Sixthly, the Probe will discover the Nature of these Wounds.

Thus, gently drawing aside the Lips of the Wound, an obtuse pointed Probe, of the softest Lead, or purest Silver, which is always most soft and flexible, is, with a wary and cautious Hand, to be introduced, and the Bottom of the Wound thoroughly explor'd; and if the Bone is any-where laid bare, a Sound will be produced, by which it may be discover'd; but if in no Part any Roughness or Asperity is felt, if all the Parts appear soft, and if no Noise is made by the Probe, we may infallibly conclude, that the *Cranium* is neither laid bare, nor injur'd, in the Part in which the Wound is inflicted.

Tho' these Wounds may at first seem slight, yet they frequently become dangerous, on account of the Vicinity of the Muscles, Tendons, tendinous Expansions, Sutures, Pericræum, *Cranium*, Nerves, Blood-vessels, and the Brain; as also because the great contractile Force of the wounded Part causes the Sides of the Wound to recede from each other, and consequently enlarges it.

When, therefore, we are ascertain'd, that the *Cranium* is not injur'd, we are nevertheless frequently to expect very dangerous and violent Symptoms; though the Force, with which the Wound was inflicted, was not sufficient to cause a Concussion of the Brain, or otherwise to injure any of the Parts within the *Cranium*: For a great many strong Muscles are inserted in the *Cranium*, as the *Cucullaris*, *Splenius*, and some others, taken Notice of above in the Description of these Parts; and there is a tendinous Expansion, or *Aponeurosis*, which covers the whole Head, and which is describ'd in the same Place: The temporal Muscles also cover a large Portion of the lateral Part of the *Cranium*. Now Wounds of the tendinous Parts are productive of very bad Symptoms, as is specified under the Article *VULNUS*; and Wounds of the temporal Muscles frequently, tho' not always, are follow'd by Convulsions; inasmuch that *Hippocrates*, in his *Coacæ Prænotiones*, pronounces, that those who are wounded in the Temples are affected with Convulsions on the opposite Side.

As to the Sutures, it has been observed, that the *Dura Mater* adheres firmly to them, and communicates with the *Pericranium*; which also is strongly connected to the Sutures, by particular Vessels passing thro' the *Cranium* at these Places: Hence Injuries done to the external Parts, near the Sutures, may readily affect the internal Parts by these Communications.

As the *Periosteum* imparts Blood-vessels to the Bones of the *Cranium*, receives mutually Vessels from these Bones, and is connected to the Bones by the means of both these sorts of Vessels, the Influx and Efflux of the vital Fluid to and from the Bones of the *Cranium*, especially the external Table, depends upon the entire State of the *Periosteum*. When, therefore, the *Periosteum* is affected, the Disorder is readily communicated to the Bones of the *Cranium*, and hence to the *Dura Mater*, particularly about the Sutures; where, by particular Vessels, a manifest Communication is form'd between these two Membranes.

As to the Nerves, those arising from the fifth Pair, and the hard Portion of the seventh, are distributed thro' the external Parts of the Head, in very numerous and considerable Ramifications. When, therefore, these Nerves are prick'd, or partially divided, all those Symptoms are to be dreaded, which, under the Article *VULNUS*, are said to attend Wounds of this kind in all Parts of the Body. 'This must happen here so much the sooner, because the Nerves are very tense as they run along the Integuments of the *Cranium*, and are also very near their Origin.

As to the Vessels, very considerable Arteries run along these external Integuments, Wounds of which are sometimes succeeded by profuse Hæmorrhages.

As to the Brain, in some Parts the Bone of the *Cranium* is so thin, as to be transparent in a prepared Skull. For this Reason, when the Integuments are cut, 'tis always to be dreaded, lest the Brain, which lies so near, should be affected. This Effect may be brought about either in consequence of an Injury done to the Nerves, or by reason of the Continuity of the external *Periosteum*, and *Dura Mater*, or by any Affection subsequent to the Wound, and which may not only hurt the *Cranium* itself, but also reach the Brain contained in it.

As to the contractile Force of the injured Part, it is a common Phenomenon in all Wounds, (see *VULNUS*) that the solid Parts, when divided, recede from each other; but this Recession is greater or less, in proportion to the contractile Force of the Parts. The Skin of the Head is thick and strong, equally tense on all the Parts of the *Cranium*, and very moveable, in consequence of which it must easily yield. A cellular Membrane also lies under it. For these Reasons, when the Skin of the *Cranium* is divided, the Lips of the Wound are speedily far retracted from each other; for which Reason Wounds of the Forehead generally leave large Scars behind them. Now, if the Nerves are partially divided, and if the Lips of the Wound forcibly recede from each other, the Symptoms attending a Nerve thus wounded will be far more violent. Besides, the more the Lips of the Wounds are retracted, the larger Portion of the subjacent Parts is exposed to the Cold of the ambient Air, whence various Inconveniences may also arise.

If a Contusion should accompany a slight Wound, this Circumstance renders it more liable to be attended with bad Symptoms.

For Contusions tear and destroy a great Number of the small Vessels; whence the Humours which they contained are extravasated, and consequently stagnate and corrupt in the Places which receive them. But as the *Cranium*, a hard Body, lies under the Integuments, unless the wounding Instrument be exceedingly sharp, some Degree of Contusion must necessarily happen. Now, in this Case, because the Skin upon the Head is extremely thick, the subjacent *Panniculus Adiposus* is thin, and liable to be easily dilated; and because the hard Bones of the *Cranium* lying under it resist, in some measure, its Dilatation, hence the extravasated and corrupted Humours readily makeway thro' the yielding *Panniculus Adiposus*, and, descending by their own Weight, may fall upon, and irritate, the large Muscles above-mentioned, inserted in the Bone of the *Occiput*, and there produce very bad Symptoms: Or these Humours may, in the same manner, descend to the Temporal Muscles, or the Muscles of the Forehead, near the Eyes, or the Root of the Nose, and there produce the same Disorders. That this is sometimes the Case, we certainly know from undeniable Observations; for every one concerned in Practice must have frequently observed, that the very Day after a Contusion has been made on the Tip of the Head, the Forehead, and even the Eye-lids, have become tumid and livid, on account of the extravasated Blood falling down upon these Parts. Hence *Hippocrates*, in his Treatise concerning Wounds of the Head, justly condemns those as of a bad Kind which are made with obtuse Darts.

Another Misfortune to be dreaded from this is, that the *Periosteum* and Bone may be contus'd or affected by the extravasated Fluids: Hence a Corruption of the Bone, and the other Symptoms attending such an Accident, are to be apprehended;

for the Bones of the *Cranium* may be contus'd, tho' they appear to be in their natural State; and the Wound made by the Contusion may have penetrated more or less into the Substance of the Bone, tho' the precise Degree of the Injury cannot be determin'd by the Eye, as *Hippocrates*, in the above-mention'd Work, justly observes. Hence 'tis obvious how justly Wounds of the Head, accompany'd with Contusions, are suspected by skilful Surgeons; since, long after, when all is thought to be in a happy State, the very worst Symptoms sometimes appear. Among the many Observations which prove this, *Bobinus* (*De Renunciat. Vuln. Sect. 2. Cap. 1.*) gives us, from *Paaw*, the following remarkable one. A certain Man was by his Neighbour, whilst drinking, struck on the Bone of the Bregma, on the Right Side, with a Pewter Pot; upon Inspection there was no Fissure found in the Bone, the Party wounded remain'd vigorous, and walk'd about till ten Months after; when, being seized with a Vertigo, he dropt down, and soon after dy'd. Upon opening the *Cranium*, in the Place where the Blow was received, the Bones and Membranes of the Brain were found putrid and fetid.

If the Aperture is but small, the Contusion large, and a great Quantity of corrupted Humours are contain'd within, bad Symptoms will very probably ensue.

It frequently happens, in Cases of a Fall, or an Injury received from any blunt Instrument, that a slight Wound is only inflicted in the Skin of the Head, at the same time that a considerable Portion is injur'd by the Contusion. In Cases of this Nature not only the Persons wounded, but also less skilful Surgeons, are subject to overlook the Misfortune, till at last they are surpris'd to find so terrible Symptoms arising from a Wound apparently so small: Nor is this to be wonder'd at, since the collected Matter, not being able to find a Passage thro' so small a Wound, is increased, and finds out new Ways for itself thro' the cellular Membrane; or the corrupted Humours, by their Stay, affect the subjacent *Pericranium*, and adjacent Muscles.

Some Years ago, says *Van Swieten*, I was call'd to a Joiner, who had labour'd under a Fever; and as his Disorder had nothing in common with the epidemic Fever then raging, and as, by the strictest Scrutiny, I was not able to assign any Cause, tho' various Symptoms discovered some latent Disorder, I was entirely at a Loss what Judgment to form. His Head-ach was very intense; his Forehead, and the Eye-lids of both his Eyes, were become red and tumid; he complain'd of a Tension in the Nape of his Neck, and his Sleeps were broken and disturb'd. I asked him, Whether his Head had been hurt by any external Cause. The Patient denied, that it had, tho' I told him over and over again, that I suspected such a Thing. A Servant who was present, luckily call'd to mind, that, about eight Days before, a Tile had fallen from a small Height upon the Patient's Head. He own'd it was so, but at the same time affirmed, that he felt little or no Pain from it, and was not sensible of any bad Consequences arising from it. The Patient, upon this, permitting me to inspect the Place, I found a small Wound, scarce larger than a Pin's Head, but under it a Contusion of an Inch Diameter. I forthwith ordered the Integuments of the Part affected to be removed, and the next Day the Fever, and all the other Symptoms, were considerably mitigated. At last, a kindly Suppuration coming on, the Wound was deterged, and the Patient happily cured, without the Appearance of any other Symptom.

In Cases of this kind, the sordid Humours, collected and retain'd within, cause considerable Tumors, an Erysipelas, or Oedema, Pains, Convulsions, Putrefactions of the Bones and *Periosteum*, Fevers, and Death.

The Air also getting into the Cavities of the cellular Membrane, and being there confin'd by the incautious Application of Plaisters, raises considerable Emphysematous Tumors.

Tumors are rais'd particularly, when, by a powerful Contusion, the Skin remaining entire, or being only very little broken, a large Number of Vessels are hurt, and their discharg'd Contents collecting themselves, and being pent up within the entire Skin, raise in it a large Tumor. This Effect is very suddenly produc'd, since the subjacent *Cranium* cannot possibly yield, for which Reason the whole Mass of the discharg'd Juices distend and elevate the Skin considerably. And this is the Reason, why, in other Parts of the Body, Contusions neither produce so large, nor so sudden Tumors. I remember, says *Van Swieten*, in a House where I once lodg'd, to have seen the Maid fall down-stairs, and dash her Forehead upon a Stone Floor. I made all possible Haste to her Assistance the Moment I observ'd her; but, before she could be taken up, a Tumor as large as a Hen's Egg appear'd on her Forehead. It is a common thing for Children, amidst their Diversions, to have such Tumors appear on their Heads, when they dash them against any hard Bodies.

As for the Difference between an Erysipelas and a Phlegmon, see the Article INFLAMMATIO

It is sufficient to observe here, that by Erysipelas is understood a superficial Inflammation, generally seated in the Skin only, of a reddish-yellow Colour, and which, for the most part, resides in smaller Vessels than those destin'd for the Conveyance of the red Globules of Blood: According to *Galen, Meth. Medend. Lib. 2. Cap. 1.* a perfect Erysipelas is a Disorder of the Skin only. This Species of Swelling occurs more frequently in no Part of the Body than in the Head and Face; and in Wounds of the Head it almost always denotes something malignant. Hence *Hippocrates*, in the nineteenth Aphorism of the seventh Section, says, *Ἐπὶ ἐν τῇ φιλώσις ἐρυσιπέλας* and *Galen*, in his Commentaries upon this Place, thinks, that, in the End of this Aphorism, the Word *καὶ* ought to be understood; because an Erysipelas does not always succeed a Denudation of the Bones; but, when it does, it is always a bad Symptom: Besides, 'tis certain that in many Passages, *Hippocrates*, by the Word *ὀστέον*, or Bone, means the Cranium, as is obvious from the twenty-fourth Aphorism of the seventh Section. Hence 'tis easily understood how such a Disorder may arise from a Compression of the Vessels of the Skin, by the discharged Humours distending it, or from the Irritation excited by their Acrimony.

Tho' an Oedema, in the general Acceptation of the Word, signifies any Tumor, especially one which is soft and cold, yet such a Tumor is not here understood, but one of a far different Nature. This cold Tumor, for the sake of Distinction, is now called Oedema Oedematodes. But when such a Tumor is white, pellucid, and accompany'd with Heat, it is call'd Oedema Erysipelatodes. This Disorder is said to be present, when those Vessels which are so small as neither to admit the red nor yellow, but only the pellucid Humours, are inflam'd. See the Article INFLAMMATIO. This Disorder is also call'd *Erysipelas Bullatum*, because it distends and renders tumid the Parts it seizes, especially the Eye-lids and whole Face, if it resides about the Head. In Wounds of the Head it arises from the same Causes with a common Erysipelas, but is generally esteemed a worse Symptom.

As for Pains, they are produced by the collected Matter distending the Skin and Nerves; or this Matter, by stagnating becoming acrid; affects the Pericranium, which is highly sensible, or even the adjacent Tendons and Muscles.

As for Convulsions, they may arise from the same Causes; and particularly when the Disorder penetrates at last to the internal Parts of the Cranium.

As for the Putrefaction of the Bone and Periosteum, under the cellular Membrane lies that tendinous Expansion taken Notice of above in describing the Parts of the Head, and under it the Pericranium, which lies immediately on the Cranium, and communicates with it both by receiving Vessels from it, and sending forth others to it. Whilst then the extravasated Humours remain pent up under the tough Skin of the Head, the Disorder produc'd by such a Circumstance is easily communicated to the Pericranium, which, when injured, intercepts the Influx of the vital Juices to the Cranium itself. Hence that Part of the Cranium which lies under the affected Pericranium putrefies, which must afterwards be separated, before the Disorder can be cur'd; or, becoming putrid, it will affect the subjacent Meninges and Brain itself. Hence arise the most formidable Disorders, such as Fevers, and even sometimes unexpected Death: An Instance of which we have in a Case already mention'd, of a young Man, who, in consequence of this Circumstance, was seiz'd with a Vertigo, and dy'd suddenly.

As for the Air entering the Cavities of the cellular Membranes, this subtle Fluid is of such a Nature as to press equally on all Sides. When, therefore, a Wound is inflicted on the Head in such a manner as to penetrate the Skin as far as the Membrana Cellulosa, and especially when the Surgeon, by introducing a Probe under the Lips of the Wound, searches carefully whether the Periosteum, or the Cranium itself, is hurt, the Air enters the cellular Membrane. If at this time the Wound is perfectly cover'd with any Plaster of an adhesive Nature, the Egress of the received Air is prevented, and, being rarefy'd by the Heat of the Body, it makes its Way thro' the cellular Membrane, and renders the adjacent Parts tumid. Upon observing this, Surgeons generally search more narrowly with the Probe, in order to find out the latent Disorder. By this means they give a fresh Admission to the Air thro' the dilated Membrane; and, by applying the Plaster again, the Tumor is augmented, and spreads itself farther, especially over the Forehead, Eye-lids, and Face. Hence it happens, that next Day the whole Face is sometimes surprisingly affected with a pellucid and elastic Tumor, insomuch that the Eyes are, as it were, bury'd, and the Nose not to be discover'd; for 'tis observ'd, that the cellular Membrane is the more easily distended, the more tender it is, and the less Fat it contains. Hence it is, that the Parts under the Eye-lids swell so easily, and that the cellular Membrane of the Penis and Scrotum are distended to such an enormous Size in that Species of Dropsy call'd Anasarca, because, in these Cases, the cellular Membrane contains no gross Fat, but only a kind of mucilaginous Substance; but, in

castrated Animals, a large Quantity of Fat is collected in these Parts. Tumors of this kind are properly enough call'd Emphysemata, or Inflations, which *Gorræus*, in his *Definit. Medic.* defin'd Collections of a flatulent Air in the empty Spaces of the Body. *Galen*, in *Method. Medend. Lib. 14. Cap. 7.* uses this same Word in the like Sense. "Inflations," (*ἐμφυσήματα*) says he, "arise from a flatulent Air collected sometimes under the Skin, and sometimes under the Membranes which cover the Bones, or which surround the Muscles, or any of the Viscera: A large Quantity of this Air is also sometimes collected in the Stomach and Intestines; as also in the intermediate Space between these and the Peritonæum." In order to distinguish those Tumors from an Oedema, he afterwards says, that, when press'd with the Finger, they do not retain its Print, but yield a Sound resembling that of a Drum. But this is only true, when this flatulent Substance is collected in a large Cavity of the Body, such as the Abdomen, which, when struck, sounds like a Drum; for which very Reason this Disorder is by Physicians call'd Tympanites. But when this flatulent Substance is lodg'd in the cellular Membrane, it may yield when press'd with the Finger; because, in consequence of its flatulent and elastic Nature, it is protruded into the adjacent Cells of this Membrane, and recovers its former Place when the Pressure ceases, or is remov'd. Because the Eye-lids swell so easily on account of the great Laxity, and consequent Dilatability, of their cellular Membrane, *Paulus Aegineta*, in *Lib. 3. Cap. 22.* for this Reason defines an Emphysema of the Eye-lid an oedematous Tumor of that Part. But in *Book 4. Cap. 28.* he says the same Things concerning an Emphysema as those already quoted from *Galen*.

But how easily the Air, when once admitted into the cellular Membrane, passes thro' all its Parts, we may learn from the Practice of Butchers, who, by making a small Orifice in the Skin of the slain Animal, inject the Air, that they may the more easily separate the Skin from the subjacent Flesh without mangling it. 'Tis also confirm'd by Observation, that Air, entering the Panniculus Adiposus, may pervade almost all the Parts of the Body, and excite surprising Tumors in various Parts, and sometimes almost over all the Surface of the Body. In the *Mem. de l'Acad. des Sciences, Ann. 1704.* we have an Account of a Girl of five Years of Age, gradually wasted with a chronical Disorder, who, three Days before her Death, had a Tumor appearing on her Right Cheek, which gradually spread over the whole Trunk of her Body. When the Tumor was press'd with the Fingers, the contain'd Air withdrew itself with a kind of Noise. After her Death, an Incision being made in the Skin of her Abdomen with a Knife, the entire Tumor forthwith subsided, and the flatulent Matter exhal'd with an intolerable Stench. *Thomas Bartholine*, in *Histor. Anatom. rarior. Cent. 5. Histor. 12.* gives us an Account of a robust young Man, who receiv'd two Wounds, one near the Right Clavicle, the other in the posterior Part of his Body, near the Left Scapula. In consequence of these Wounds, not only his Face, but all the other Parts of his Body were seized with a Tumor, which, in some measure, resembled a Sponge full of Wind, and which restored itself to its former Situation after Pressure. The same Author, in *Cent. 6. Hist. 89.* gives us another Instance of the same Nature. This Species of Tumor may also, probably, be produc'd whilst the extravasated Humours are becoming putrid; since at this Time, as is confirm'd by Experience, by the Putrefaction, the latent elastic Matter of Bodies is drawn out into Action, which, if it is not Air, is yet a Substance capable of being immensely expanded by Heat. Thus the Carcases of Persons drowned beginning to putrefy, and the Whole of the Body becoming distended, especially the Abdomen, emerge and rise above the Water, since, by having their Bulk enlarg'd, they are render'd specifically lighter than that Fluid. Now, as a Collection of this extravasated Matter, lodg'd under the Skin, is capable of degenerating so far, 'tis obvious it may sometimes prove the Cause of this surprising Disorder. Perhaps this was the Case with the Girl, who, being wasted with a chronical Disorder, had the whole Trunk of her Body render'd tumid three Days before her Death.

Hildanus, in *Observ. Chirurg. Centur. 2. Obs. 25.* gives us a Case, in which, after severe Wounds of the Head, the Carcase of the Deceas'd, two Days after the Wounds were inflicted, smell'd so strong, that none could approach it; and next Morning the Head, Face, and Arms, were swell'd in an incredible Manner, and the Scrotum so distended as in Bulk to equal a Child's Head.

When such an Emphysema appears, the very Nature of the Thing indicates, that this elastic distending Substance should be expell'd from the cellular Membrane, which it distends to such a Degree. This Effect may be produc'd by moderate Pressures, or Frictions, by driving the included Air to the Aperture of the Wound, which may also be dilat'd, if Necessity requires it; or a free Discharge of this Matter may also be procur'd by Scarifications, which penetrate into the cellular Membrane. *Paré*, *Lib. 10. Cap. 30.* gives us a memorable Instance of the Success of Scarification in a Case of this Nature: A Man receiv'd

receiv'd a Wound in the Throat with a Sword, which cut a Part of the Aspera Arteria, and one of the Jugular Veins; whence ensu'd a profuse Hæmorrhage, and a whizzing Noise, made by the Air passing thro' the Wound of the Aspera Arteria. The Lips of the Wound were united by Suture, and astringent Remedies were apply'd. A little after, the Air, insinuating itself into the cellular Membrane, not only wonderfully distended the Places adjacent to the Wound, but also the whole Body. The Face was so inflated, that the smallest Traces of the Eyes and Nose were not to be observ'd. Whilst the Patient was by all abandon'd in this deplorable State, as one whose Recovery was not to be expected, a skilful Surgeon boldly ventur'd to make several deep Scarifications in his Skin, with an Intention to give a free Exit to the included Air. The Success of the Operation was so surprisingly happy, that the Patient was snatch'd from the Jaws of Death, and restor'd to perfect Health.

But those emphysematous Disorders much more frequently accompany those Wounds of the Breast which penetrate into the Cavity of the Thorax, because the Air convey'd thro' the Wound into the Cavity of the Breast cannot often be discharg'd thro' the Wound, when it is either too small, or obstructed by any Cause whatever: Hence, being rarefy'd by the Heat of the vital Organs, it makes its Way into the cellular Membrane, But if the injur'd Lungs let the inspir'd Air pass into the Cavity of the Breast, 'tis obvious that terrible Emphysemata may be produc'd, since by every repeated Inspiration an Accession of new Air is made.

If the Integuments only are injur'd, without any of the unpromising Circumstances above related, the Cure is easily perform'd, tho' the Wound appears to be very large, by proper Bandage, and the Method directed for the Cure of Wounds in general, under the Article *VULNUS*. But the Cure succeeds best, when proper Measures are pursu'd whilst the Wound is recent; when the Lips of the Wound are properly brought together; when it is dress'd but seldom, and then with the utmost Expedition; when all moist, relaxing, unctuous Applications are carefully avoided; and when it is well defended from the Air.

From what has been said it is evident, that less is to be apprehended from a large Wound, than from a small Wound with a great Contusion; which last may be, and frequently is, attended with Danger. This, however, may, in some measure, be prevented, by enlarging the Aperture of the Wound.

All the Cautions relative to Wounds in general, given under the Article *VULNUS*, are applicable to Wounds of the Integuments of the Head without Contusion. But there are some Particulars to be observ'd in Wounds of the Head, even when the external Parts are only injur'd. Thus the Ligatures design'd either for securing the Dressings, or keeping the separated Parts in Contact, ought to be so moderately apply'd, as only to secure the Parts gently; for if they should be apply'd too tight, the external Integuments are press'd upon the hard Cranium, which every-where lies under them. Hence a Compression of the Vessels, an Inflammation, and the several Disorders arising from it, are brought on. Expert and skilful Surgeons, on Occasions of this Nature, always use soft and gentle Bandage. The Union also of the gaping Lips in Wounds of the Head is not so properly obtain'd by Compressions and Bandage, as by adhesive Plaisters, or what we call the dry Suture, because these Wounds generally divide only the Skin, and the slender subjacent cellular Membrane adhering to the Skin easily follows it.

The most skilful Surgeons, in Cases of this Nature, to the Patient seem to do nothing at all, whilst, at the same time, they ward off and prevent many Symptoms, which, in the like Cases, are brought on by the officious Care of less skilful Hands, and which are afterwards remov'd with Difficulty; for all that is here requir'd is, that the separated Integuments of the Head may again grow together, and be united. But for this Purpose Nature alone is sufficient, and Art only removes the Impediments, and proves a kind of Assistant. When, therefore, all the Symptoms declare, that the Cure is proceeding happily, there is no manner of Occasion for cleansing the Wound often, and exposing the sprouting tender Vessels to the unaccustom'd Influence of the Air; and that superfluous and preposterous Method of wiping Wounds by the frequent Application of Pledgets will destroy the tender Parts, as fast as they begin to sprout afresh. It is, therefore, sufficient to dress Wounds but seldom; for if any thing peccant is conceal'd, or if too large a Quantity of Pus calls for Absterfion, the Heat and gentle Itching about the Wound will inform us of it; we may also discover by the Smell, whether any thing of a putrid Nature is contain'd in the Wound; and the increas'd Malignity of the Symptoms will immediately indicate, whether any thing highly dangerous is to be dreaded. *Cæsar Magatus*, who has supported the rare Dressing of Wounds with the most solid Arguments, and evidently demonstrated the happy Consequences of that Practice, when speaking of simple Wounds of the Head

without a Denudation of the Bone, after having directed the Lips of the Wound to be united, and Turpentine, with Mastich and Sarcocolla to be apply'd, forbids the Removal of the Dressings for four Days; because, in that Time, he says, the Conglutination will be accomplish'd. But where there is a Loss of Substance, or where the Gaping of the Lips of the Wound requires a Generation of new Flesh, he orders the Removal of the Dressings of the Wound to be defer'd till the seventh Day. The Surgeon may, indeed, once a Day, or oftener, inquire whether any Pain, Itching, or Heat, are perceiv'd; he may also smell whether any thing of a putrid Nature is contain'd in the Wound: But if he discovers no such thing, 'tis more adviseable to let the Dressings remain; and if a fresh Dressing is necessary, it ought to be apply'd with all possible Expedition; and every thing ought to be in Readiness before the Wound be uncover'd. In Wounds of other Parts of the Body, where the Integuments are only divided, the uncovering and cleansing them frequently does generally little more Harm than retarding the Cure; but this Practice is more dangerous in Wounds of the Head, since the Disorders of the Integuments are so easily communicated to the subjacent Pericranium, and even to the Cranium itself: For this Reason the seldom Dressing of these Wounds cannot be too carefully inculcated. Where there is a Wound of the soft Parts, attended with a Fracture of the Bone, after the Bone is restor'd, the Dressing is left on for several Weeks; and yet the Cure of the Wound accompanying the Fracture succeeds very happily, tho' it has not been artificially deterg'd.

All moist, relaxing, and unctuous Applications ought carefully to be avoided; for under the external Integuments lies the tender and easily dilatable cellular Membrane, naturally pent up between the Skin and Cranium: When, therefore, upon a Division of the Integuments, moist and relaxing Medicines are apply'd to the Wound, the cellular Membrane, moisten'd by these, will become luxuriant, be fill'd with adventitious Fluids, and degenerate into a fungous Substance, to be again separated by a subsequent Suppuration, which, when copious and lasting, seldom fails to affect the subjacent Pericranium. Hence all skilful Surgeons have unanimously condemn'd the Use of them in Wounds of the Head; and in this Particular they have follow'd the Practice of *Hippocrates*, who, in his Treatise of Wounds of the Head, Sect. 17. affirms, that "A Wound of the Head is not to be moisten'd with any thing, no not with Wine, or at least with very little; neither does such a Wound require Cataplasms or Liniments." In the same Treatise he afterwards adds, that "It is a bad Symptom when in Wounds of the Head the Flesh is humid, moist, (*μυδῶσαν*) and long before it is render'd clean." And after he has inform'd us, that Flesh, shatter'd and mangled by a Dart, ought to be converted into Pus, he tells us, that the Wound is to be brought to a Suppuration as soon as possible; but when it is depurated, it ought to become drier, by which means it will heal the sooner, and a dry and not over-moist Flesh be generated. When, therefore, a Contusion, accompanying a Wound, requires Fomentations, the Surgeons now always use Wine, lest too great a Relaxation should be produc'd by aqueous Applications alone. For the same Reasons no pinguious Substances ought to be us'd in Wounds of the Head, by reason of the great Relaxation they induce. Oleous Substances also, by their Tenacity, obstruct the Capillary Vessels, and render them impervious. *Ludovicus Duretus*, in his *Comment. in Coac. Hippoc.* informs us, that in Italy, especially among the *Florentines*, Wounds of the Head were observ'd to be very difficultly cur'd, which they ascrib'd to some latent bad Quality of the Air. But several Authors, among whom *Bonetus*, in his *Anat. Practic. Tom. 3.* is one, have observ'd, that they apply Oil of Roses and of unripe Olives to the Wound, and also anoint the adjacent Parts with the same. Hence these Authors inform us, that none or few escape, tho' they have been but slightly wounded. Hence also *Marcus Aurelius Severinus*, in his *Trimemb. Chirurg.* deplores the fatal Use of Oil, which, at *Naples*, was common in Wounds of the Head; and affirms, that the slightest Wounds became dangerous, insomuch that of an hundred scarce one escapes; whereas the Physicians of *Malta* us'd a Mixture of Wine and Oil with such Success, that among an hundred scarce one perish'd, as the tenacious Quality of the Oil was corrected by the Admixture of the Wine.

Wounds of the Head are also to be preserv'd from the Air, not because it is always hurtful in consequence of some malignant Quality; tho' in Hospitals, where there are many Patients, the Air, contaminated with putrid Exhalations, may prove prejudicial to any Wound; but the principal Reason is, because the tender sprouting Vessels are mortify'd by the Cold, to which they are not accustom'd; or because, being too moist, it may produce bad Effects, by softening and relaxing them. Hence the uncovering these Wounds very seldom is also to be recommended for this Reason. And when Wounds of the Head are dress'd, a dry and hot State of the Air is principally proper, which may be obtain'd by Fire, and kindled Aromatics, such as Amber, Mastich, and Frankincense.

When

When any of the Muscles, Tendons, tendinous Expansions, Periosteum, Cranium, Nerves, Blood-vessels, or Brain, are injured, or when a Wound near the Sutures is productive of bad Effects, the Treatment must be varied, as the different Parts affected, and the Nature of the Injury, require; and as is directed under the Article of *Wounds* in general.

'Tis obvious, that nothing can be universally determin'd with respect to the Cure of the Disorders arising from these Causes. But we must first know the Part adjacent to the Wound, and the Injury either already done to this Part by the Wound, or suspected to follow from it, before we can determine any thing certain either with respect to the Cure or Prevention of these Disorders: For another Method of Cure is requir'd, when considerable arterial Blood-vessels are cut together with the common Integuments of the Head, than when a Wound of a Tendon brings on terrible and fatal Symptoms.

Thus, in Case of Contusion, the Parts contus'd must be well digested by such Applications as are capable of dissipating the stagnating Humours, or of suppurating them; but, for these Purposes, such Medicines must be made Choice of as are friendly to the Nerves and Membranes, or the contus'd Parts may be cut away.

A Contusion supposes many Vessels broke, and their contain'd Humours discharg'd, which being then collected in the cellular Membrane, frequently excite surprising Tumors; and unless the wounding Instrument is pretty sharp, some Degree of Contusion almost always accompanies Wounds of the Head. In Cases of this Nature 'tis necessary to carry off the discharged Humours, or to dispose them for being again absorb'd, and to restore the Vessels to their former Soundness: If the Contusion is slight, and the discharged Liquids still capable of being dissipated, 'tis most proper and safe to procure this End by fomenting the Part with such Medicines as dilute and resolve concreted Fluids, resist Putrefaction, and are not, at the same time, too emollient. The Urine of a sound Man, with the Addition of a little Sea Salt, or Sal Ammoniac, and Wine, is an excellent Medicine in these Cases, and often proves effectual for dissipating the Tumors arising from Contusions in the Heads of Children. Fomentations of Rue, Scordium, and Herbs of a like Nature, are also to be used, because, by their singular antiseptic Virtue, they guard against Putrefaction, and powerfully resolve Concretions. Nor are slight Contusions only cured by these Medicines, but also considerably large Tumors, which one would think could only be remov'd by Incision, may be happily dissipated by them. A certain Woman, happening to fall from a Chariot, struck her Forehead against the frosty Ground; by which means a large Tumor was forthwith excited on the Part. The Surgeon, understanding that the Patient had vomited a few times after the Accident, concluded that the Cranium was depress'd, and was just about to make a crucial Incision: But the celebrated *Ruyseh*, being called to the Consultation, declared against the Incision, and apply'd a warm Fomentation of cephalic Herbs, boil'd in Wine, and put in a Linen Cloth, with such surprising Success, that in three Days the Tumor began to grow less, and was soon after dissipated, without the Appearance of any bad Symptom whatever. He adds, that he has often, by the like means, sav'd those who were just about to have the Incision-knife plung'd into their Heads.

But when the Dissipation of Contusions is in vain attempted by such Fomentations, or where the Greatness of the Disorder leaves no Hopes of such a mild and gentle Resolution, then the only Method to be pursu'd is, to endeavour the Separation of the corrupted Parts by Suppuration. This is what Surgeons call *to digest*, when they convert a Matter, which cannot be resolv'd, into a laudable Pus; and they call those *digesting Medicines*, which change the discharg'd irresoluble Humours to the Condition of good Pus: But concerning these see the Article *VULNUS*. In Wounds of the Head, we are always to take care not to use such Applications as may prove prejudicial, by relaxing too powerfully: Hence we are to abstain from Cataplasms, because they moisten too much; but we are to take the purest Turpentine, or any other native Balsam of a like Quality, and by the Addition of the Yolk of an Egg to correct its tenacious Quality, which in this Case would prove hurtful; then we are to add a little of the *Unguentum Basilicon aureum*, or some such Ointment; then Aloes, Myrrh, or Frankincense, reduced to a fine Powder, are to be sprinkled upon it. Thus we have a digestive Medicine, in which are all the Ingredients which resist every kind of Putrefaction, and are observ'd to be friendly to the Nerves, and the nervous and tendinous Membrane. This Medicine, spread upon a Pledget, is to be apply'd to the Part affected. Then an aromatic Plaster is apply'd, in order to cherish the Parts, and excite a somewhat brisker Motion in them, which is always useful in promoting a Suppuration. Over all these are to be apply'd Woollen Cloths, moisten'd in some Fomentation which penetrates, dissolves, and resists Putrefaction. But care must be taken, that they be ap-

ply'd as warm as the Patient can possibly bear, and that the Part be not suffered to cool suddenly. All these Medicines are to be varied according to the Constitution of the Patient, and the Season of the Year.

Boerhaave, in his *Materia Medica*, informs us, that in these Cases such Medicines as attenuate, dilute, and preserve from Putrefaction, are to be us'd; and orders the following Ointment to be apply'd upon Pledgets.

Take of Turpentine, twb Ounces, and the Yolk of an Egg: When these are sufficiently mix'd, add two Ounces of Basilicon, and of pure Aloes, four Drams.

Over this let the following Plaster be apply'd:

Take of Gum Galbanum, depurated, and made up with the Yolks of Eggs, four Ounces; of yellow Wax, two Ounces; of the Oil of St. John's-wort, three Drams: Mix all together.

Then add the following Fomentation, which is to be apply'd as warm as possible, with express'd Woollen Cloths.

Take of the fresh Leaves of Rue and Scordium, each two Handfuls; of the Flowers of the Lesser Centaury, Elder, and Roses, each three Ounces: With thirty Ounces of these, boil'd in Water, and express'd, mix five Ounces of Spirit of Wine, and two Drams of *Venice Soap*.

But when, by a profuse Effusion of Humours, the cellular Membrane is distended into a large Tumor, a Suffocation often hence arises; and the Membrane, almost become gangrenous, is separated, together with the Humours pent up in it. In this Case it may safely be cut away. We see how surprisingly the cellular Membrane swells in other Parts of the Body: In the Back of the Hand, for Instance, there is scarce any Fat, but the Tendons of the Muscles are lodged in a very slender cellular Membrane; yet, when an Inflammation happens in this Place, a Tumor two Inches in Thickness is often produc'd, and the Whole of this is lodged in the slender cellular Membrane: Upon this a Suffocation happens; and, upon opening the Place, large gangrenous Portions of the Membrane appear, and may safely be extirpated. The same may also happen in Wounds of the Head; and this corrupted Membrane, together with the extravasated Humours, may separate. But we do not here mean, that Contusions, which cannot be resolv'd, are cruelly to be cut out, with the Skin which covers them; for it would be prejudicial to lay bare so large a Part of the Pericranium from its Integuments, which would not easily grow again; and, besides, the Place would be render'd still weaker, and be left more exposed to external Injuries. Hence *Galen*, in *Comment. 3. in Hippoc. de Fracturis*, carefully advises the Skin to be preserved as much as possible in all Wounds and Ulcers, because, says he, bare Flesh, when left without the Skin, is difficultly brought to a Cicatrix. I myself, says *Van Swieten*, saw a melancholy Proof of this. A healthy Man, of a middle Age, had a broad Wart near the inferior lateral Part of his Forehead, adjacent to his Temple. When its Removal had been in vain attempted by various Remedies, a Surgeon, in other respects sufficiently skilful, cut out the whole Wart, together with the Skin. The Place, thus depriv'd of its Skin, could never by any Remedies be brought to a Cicatrix; but the Skin being gradually more and more retracted, the subjacent Parts were of course more exposed, and a malignant Ulcer preying upon the adjacent Parts, the Patient died a miserable Death soon after. Nor is this to be wonder'd at, since the Pericranium alone, lying on the Bone, does not seem sufficient for the Regeneration of so much lost Substance: But we are here only speaking of the distended and corrupted cellular Membrane, which may be safely extirpated.

If the Humours stagnating in the contus'd Parts produce considerable Tumors, Pains, Convulsions, Putrefaction of the Bone and Periosteum, and their Consequences, the most prudent Method is, to lay them open by Incision, and to depurate the Parts by digestive, abstergent, corrosive, or drying Applications, as directed under the Article *VULNUS*.

For all the Malignity of such a Wound consists in this, that the discharged Humours, being pent up by the thick Skin of the Head, and not being able to pass thro' the too narrow Orifice of the Wound, make a Way for themselves thro' the cellular Coat; or being corrupted by their Stay, they affect the Pericranium, and the Cranium itself. By dilating the Wound, therefore, a Passage is made for the extravasated Humours, and the Part affected may be more commodiously treated with proper Medicines. Such a Disorder is distinguished by the narrow Aperture of the Wound, by the Tumor and Mobility of the adjacent Integuments when touch'd with the Fingers, and from the Patient's being seiz'd with a Fever, for which no other Cause can be assign'd.

Not, in this Case, is there any Danger of wounding the tendinous Expansions, since the Whole of this Tumor is lodged in the Cellular Membrane, which may be safely cut out, together with the Skin. And we are convinced, by numberless Instances, that not only the Skin, but also all the Integuments, may be safely cut to the very Bone, when it is necessary.

Whilst Hippocrates (*de Capit. Vuln. Sect. 18.*), is recounting those Wounds of the Head which require Incision, he mentions those “ which have not a Length and Breadth sufficient to discover if the Bone has been injured by the Weapon, &c. “ and when Wounds have a kind of oblique Cavity, that Cavity must be cut broad, &c. and when Wounds are orbicular, and very hollow, they must also be cut with a double “ Incision longitudinally, that the Wound may be render’d “ longitudinal.”

But how greatly, in such Cases, the Symptoms are relieved by a timely Incision, we learn from the above related Case of a Joiner, who had his Symptoms considerably abated next Day after laying open the Integuments of the Parts affected. But, after the Wound is dilated, then the digestive Medicines, above recommended, may be applied. Concerning the Depuration of Wounds, see the Article VULNUS. But only that Dilatation of the Wound which is made with the Knife is commendable; for that which is made by Sponges, or other dry Substances, which swell by absorbing the Humours, is generally prejudicial; because, by their means, the Orifice of the Wound is so block’d up for some Hours, that nothing can be discharged: Hence an *Emphysema*, and other Tumors, may be produced. Besides, the Contusion and Inflammation become greater in the Lips of the Wound, which will afterwards require a longer continued Suppuration, before they can be again consolidated.

When the Pericranium is injur’d in such a manner, as that the Bone lies for some time bare, or putrefies, the Bone is deprived of the Vessels, which it otherwise receives from the Pericranium, and consequently of its own proper Vessels: Hence, the Humours stagnating in the Part, the Bone putrefies, and a Scale separates from it: Whence the Bone appears yellow, brown, or black, and at last exfoliates.

After having treated of those Wounds of the Head which only injure the common Integuments, it now remains, that we inquire into those Disorders which are produced by Wounds of the Pericranium. As all the other Bones of the Body are cover’d with a peculiar Membrane, which adheres pretty closely to them; so the Bones of the Cranium have also their Covering, which is call’d the *Pericranium*. Ruysch demonstrated, by Anatomical Injections, that a large Number of Vessels were distributed thro’ this Membrane, which, by Branches sent off, were inserted into the subjacent Bone, and served to supply it with the Humours necessary for Life and Nourishment: By means of these Vessels sent off, the Coherence between the Cranium and Pericranium is very strong: Hence, by tearing this Membrane from the subjacent Bone, in a living Animal, many small red Spots appear in the Bone. The Pericranium cannot therefore be injured, but a large Number of those Vessels, running to the Bone, must be destroy’d. But the Extremities of the broken Vessels may, on the external Surface of the bare Bone, form again a like Membrane in that Place where the Bone was stript of its Pericranium, by the same common Law by which all lost or separated Substances in Wounds grow again. See VULNUS. But where the Bone has been long bare, and especially when the Air has had a free Access, these tender Extremities of the Vessels are destroy’d, and become quite unfit for forming a Membrane like that which is lost. The external Surface, then, of the Bone, being deprived of the vital Influx of the Fluids, becomes mortified, nor can it ever grow again with the live Parts: Hence Nature, by means of the live Vessels underneath, attempts the Separation of the corrupted and mortified Part from the subjacent sound vital Part, and thrusts off the dead and mortified Part. After the Separation of this there grows a new Pericranium out of the Bone, and the adjacent sound Membrane. When a Bone is thus affected, it may be known from its Change of Colour, which, in sound Bones, is a little reddish, or, in many Places, of a whitish Blue: But, on this Occasion, a yellowish Colour arises in the Part affected, which gradually becomes darker and darker, till it grows blackish, and at last the corrupted Part of the Bone is separated. The more, then, the Colour of the Bone recedes from what it naturally ought to be, and the blacker it is, the greater Tendency it has to Corruption, as is obvious in the Teeth, which, when disorder’d by any Cause whatever, begin gradually to lose that bluish Pearl-colour they naturally ought to have, and become at first pale, then yellow, and at last, becoming blackish, fall away in Pieces. Now ’tis certain, from the most accurate Observations, that the Bones of the Cranium were originally in the *Fœtus* cartilaginous Membranes, in the Middle of which the first Rudiments of the Bone are form’d, and bony Ramifications are diffused every-where from this common Centre: Thus the internal bony Table of the Cranium, call’d the vitreous Table, is at first produced.

Then these bony Ramifications, or the Filaments of this reticular Substance, gradually become broad externally, and form small Plates, different as to their Bulks, Figures, and Situations, and of which the *Diploë* of the Cranium is form’d. Then the Points of these Plates, of which the *Diploë* is form’d, are blunted, as it were; and, becoming broad, are laid over each other like Scales, and form a kind of uneven Lamina, which constitutes the external Plate of the Cranium. Then both Tables become thicker, and more solid; for these bony Ramifications, and slender Plates, become tumid; and new Scales are added: From this Account of the Formation of the Bones of the Cranium, founded not on Speculation; but, by the celebrated *Albinus*, taken from the genuine Works of Nature, ’tis obvious, that the Structure of the Bones of the *Bregma*, *Occiput*, Forehead, and Temples; which are principally subject to be injur’d by Wounds, is lamellated: Hence the Disorders of the injur’d Pericranium may be communicated to the superior Laminae of the subjacent Bone; and injure them more or less. And it is highly probable, that, in Infancy, when the Bones have not as yet acquired a great Degree of Solidity, Vessels are distributed betwixt each of these Laminae, which are afterwards, in Process of Time, like many other Vessels, gradually obliterated. This Conjecture is confirm’d by some Observations on the Parts constituting the Bone, which, being every way enlarged in their Dimensions by a Disease, have appear’d to be of such a pulpos, soft, and vascular Structure: Thus, in the *Hist. de l’Acad. des Sciences*, for the Year 1734. we are told, that the Bones of the Cranium of a Child of three or four Years of Age were every-where seven or eight Lines thick, and soft; and that, upon being press’d, they discharged a large Quantity of Blood and Lymph; and that the Blood-vessels appear’d very conspicuously in them. Hippocrates, in his Treatise of Wounds of the Head, *Sect. 2.* seems, in the following Words, to acknowledge this: “ The whole Bones, “ says he, of the Head, except a small Portion of the lowest “ and uppermost, are like a Sponge, and contain a large Quantity of a moist fleshy Substance, which, when press’d with “ the Fingers, discharges Blood: There are, besides; in these “ Bones, small Veins full of Blood.” The small Laminae, therefore, totally deprived of a vital Influx of the Humours, will be separated by means of the Vessels distributed between them; and if these should be obliterated by the near Approach of the bony Laminae to each other, the Vessels which, arising from that soft spongy Substance call’d the *Diploë*, between the two Tables of the Cranium, are distributed to the Bone, may perform this Office: Hence, perhaps, the corrupted bony Laminae are, with Difficulty, separated in old Men: Hence also appear the happy Effects of making a great many small Perforations in the Bone, in the manner hereafter to be described.

Tho’, therefore, when the Bone is deprived of its Pericranium, if a remarkable Change of Colour happens, we are to expect a Separation of the corrupted Laminae, by what Surgeons call Exfoliation; yet we are, by some very rare Cases, taught, that a Cure may be completed without this; for Ruysch, in *Observat. Anatom. Chirurg. Centur. Observat. 5.* gives us an Account of a Man, “ who, being struck by a Horse “ on the Head, fell to the Ground like one dead, with so large “ a Denudation of the Os Sincipitis, that a Crown was “ scarce sufficient to cover it. The whole denudated Part of “ the Bone became black, except a Circle about a Straw’s-breadth next to the Skin. This white Circle becoming daily “ less, the Patient recover’d, without any visible Separation of “ the Bone, or the Use of the Raspatory.” Perhaps the affected Part of the Surface of the Bone was not separated in the Form of a Scale, but was gradually carried off by the Pus in minute Particles.

One principal Cause of the Putrefaction, and consequent Exfoliation, of the Bone, is an Interruption of the Continuity of the Vessels which nourish it, and consequently of the Circulation of the Humours thro’ them. Another Cause is the Coldness of the Air, which contracts and dries up the Extremities of the small Vessels of the Bone, without, however, any of that imaginary Malignity which some attribute to the Air.

By means of a Wound, all those Actions are injur’d which depend upon the Integrity of the Parts now separated by the Wound, and the determinate Circulation of the Fluids thro’ the Vessels: But the Use of the *Pericranium* is to send off Vessels to the Bone, and receive others from it, as appears obviously by the artificial Injection of the *Pericranium* of a *Fœtus*; for, in such a Subject, the Vessels are, in this Membrane, found to be far more numerous than in a more advanced Age, when they coalesce, and are obliterated. The *Pericranium* therefore being destroy’d, the Continuity of the Vessels, on which the Life and Nourishment of the Parts depend, must of course be removed: That Part, then, of the Bone, which is thus deprived of the vital Influx of the Humours, will become mortified, and be separated from the subjacent live Parts.

But

But as Surgeons always observed, that the Surface of the Bone, deprived of its *Pericranium*, cannot be long exposed to the Air, without a subsequent Corruption and Exfoliation of the Bone, and as, on the other hand, they often found, that the Bone, when deprived of the *Pericranium*, often did well, without any Separation, if immediately defended and cover'd up from the Air, they imagin'd, that the Air was possess'd of some malignant Quality, which corrupts the Bones: 'Tis, indeed, very true, that several Substances may be lodged in the Air, which may not only prove injurious to denudated Bones, but also to all Wounds in general. Thus, in Hospitals where there is a great Number of Patients, the Air, contaminated by the putrid Exhalations, is observed to render the Cure of Wounds difficult: But tho' these Substances are lodged in the Air, yet they are, properly speaking, distinct from that Fluid. But the Air, freely admitted to denudated Bones, seems by its Coldness, and that Principle by which it attracts Moisture and dry Bodies, so to shrivel the broken Extremities of the Vessels on the Surface of the Bone, as to render them entirely impervious to the Humours: Hence all the other Symptoms are induced, as was observed above. For this very Reason, *Hippocrates* never accused the Malignity of the Air, but only asserted, that a cold Air was hurtful to the Bones, the Teeth, and the Nerves.

Whilst the superior Scale of the Bone, deprived of its Vessels, is corrupted, the Disorder is easily convey'd to the Part of the Bone lying immediately under it: Thus it may reach thro' the whole Thickness of the external Lamina of the Cranium to the *Diploë*, and corrupt it; which Disorder may at last affect the inner Table of the Cranium, call'd the vitreous Table; or, creeping along in the *Diploë*, between the two Tables, may produce the worst Symptoms.

In Cases where the Bone is thus affected, the Cure is to be perform'd,

First, By gently making in the Bone a great Number of small Holes with the Perforator; by which means Exfoliation is prevented, and the *Periosteum*, or something analogous to it, is regenerated.

Secondly, By keeping the Wound clean from Pus and Sanies, at the same time defending it from every thing unctuous and watery, and applying to it Pledgets dipt in Spirit of Wine, impregnated with Mastic.

Thirdly, By renewing the Dressings very seldom, and then with the utmost Expedition.

When we are certain, that the Bone of the Cranium is divested of its *Pericranium*, and, by the free Access of the Air, so changed in its Surface, that all vital Motion of the Humours is obstructed, what is mortified must necessarily be separated from the sound Parts with which it coheres, before such a Wound can be heal'd: But this Separation is entirely perform'd by sound Vessels lying under the mortified Part, which, by their continual Motion, and, as it were, Pushing, separate and expel the mortified Part of the Bone. *Hippocrates*, in his *Treatise of Wounds of the Head*, made the same Observation in the following Words: "In Wounds of the Head, the Bone to be separated, whether the Trace of the Weapon is left in it, or whether it is much denudated, is, for the most part, separated when it is render'd exsanguous (*ἀπορῖσθαι*) ἐπὶ πολὺ ἐξαιμεῖται." And he afterwards adds, "For this Reason it is principally separated from the rest of the Bone which has Life and Blood, and is exfoliated, when become dry and exsanguous." But if this Work is left to Nature, it proceeds very slowly, and is not perfected sooner than in forty Days, and sometimes more; for, in so many Days, the contused Margins of the Perforation, made by the Trepan, are observed to be separated. But, in this Interval of Time, various unlucky Changes may happen to such a Wound, and the Disorder of the Bone may be communicated to the subjacent Laminæ, and the Evil consequently increased. Patients, especially in public Hospitals, are, for the most part, much affected when obliged to remain long in them, as is attested by all Surgeons who have had an Opportunity of attending Hospitals: But this Circumstance is observed to prove most fatal to those who labour under Wounds of the Head: Hence it is a beautiful and useful Improvement of the Art, to discover by what Means the Separation of the corrupted from the sound Bone may be accelerated. Surgeons have attempted this by rasping the Bone with a Ruginé, and burning it with a Cautery; but thus the abraded or burnt Surface must be again separated. The whole Separation of the mortified Part, as we have already observed, depends upon the Action of the subjacent live Parts: Every thing, then, which can make way for the subjacent live Vessels, and promote their Rising under the corrupted Part, will accelerate this Separation. The best Method, then, of answering this End, is gently to perforate the bare Bone with minute Holes, pretty near each other, to the *Diploë*, where we are sure, that a great Number of live, and, at the same time, considerably

large Vessels are lodged. This is perform'd by the pyramidal Apex of the perforating Trepan, or by the Point of a common Needle, so fix'd in a Handle as to be commodiously turn'd about; or by the Instrument represented *Tab. 28. Fig. 2. and Fig. 7. A.*

And whilst these Holes are made in various Parts, pretty near each other, the live subjacent Vessels, not being encumber'd by the Part which covers them, rise thro' these Holes, form a new *Periosteum*, and often such a Wound is happily cured without any Exfoliation. Besides, the Vessels lying between the Plates of the Bone may rise, and be lengthen'd out thro' these Apertures, and thus separate the superincumbent corrupted Part of the Bone. Uncommon Success has demonstrated the Usefulness of this Method; and *Belloste*, a skillful Surgeon, to whom this Invention is owing, or at least who first accurately describ'd it, affirms, that, in many Cases, he has by this Method perform'd happy Cures; and, in his *Treatise of Surgery*, gives two Cases, which were cured before many Spectators in the public Hospital, in Confirmation of it.

A Soldier had the common Integuments of his Head carried off by a large Cannon-ball, but the Bone was unhurt, tho' the *Pericranium* was so contused as to become quite livid. *Belloste* scratch'd off the *Pericranium* with his Nails, laid bare the subjacent Bone, and gently perforated it in several Places: Two Days after, the Dressing being removed, the Bone appear'd reddish; and, two Days after this, more than half of the denudated Bone appear'd cover'd with a fresh *Pericranium*. Seven Days after, the whole Surface of the Bone was entirely cover'd, and the Wound thoroughly consolidated in the Space of eighteen Days.

The other Soldier, upon receiving a Wound on the Left Bone of the Bregma, with a cutting Instrument, had a pretty large Portion of the Cranium laid bare. At the second Dressing the Bone had eight or ten small Perforations made in it; but in such a manner as not to reach entirely to the *Diploë*. The other Measures taken were the same as in the former Case. Two Days after, the Wound being uncover'd, the Bone began to appear red, and something began already to rise thro' the small Perforations. Eight Days after, the Bone appear'd cover'd with a new Membrane, and the Cure was completed in seventeen Days, notwithstanding the Largeness of the Wound.

From these two Cases the Usefulness of this Method is sufficiently obvious; and it is plain, that 'tis, in these Cases, only necessary artfully to procure a free Passage to the subjacent live Vessels to emerge and sprout out. By the last of these Examples it is also obvious, that it is not always necessary, that the Bone should be perforated to the *Diploë*; but that, by a slight Aperture, the Vessels lying between the Plates of the Bone are sometimes sufficient for the Regeneration or Reproduction of the lost *Pericranium*; for *Belloste* informs us, that he tried this Method with no other View, but in order to be certain, whether a gentle Perforation of the Bone was sufficient for answering this Intention. But where the yellow or brownish Colour of the denudated Bone indicate, that the Corruption of the Bone has penetrated pretty deep, it is necessary to perforate it to the *Diploë*, that, by means of the considerably large Vessels lodged in it, a Separation of the corrupted Bone may be made, and a new *Pericranium* form'd.

Hippocrates seems to have had this Method in his View, when, in his *Treatise of Wounds of the Head*, *Sec. 30.* he uses these Words: "But when the Bone is divested of its Integuments, we ought carefully to consider, if we cannot distinguish, with our Eyes, whether the Bone is split and contused, or whether it is only contused, or whether the Contusion or Fissure, or both, bear any Resemblance to the Shape of the Instrument with which they were made; and if the Bone should be in any of these States, it is to be perforated with a small Perforator, and Blood extracted from it; only it is to be remember'd, that the Bones of the Cranium are thinner in young Persons than in Adults." 'Tis certain, that when the Perforator has reach'd the *Diploë*, the Blood breaks out; and it seems to be sufficiently obvious, that, in this Passage, *Hippocrates* does not mean a Removal of the Bone by the Trepan, but only a gentle Perforation of it till the Blood bursts out, that is, till the Instrument has reached the *Diploë*.

All Surgeons who have wrote on the Cure of Wounds of the Head, agree in this, that all pinguious, aqueous, and moistening Substances are prejudicial in these Wounds, as has been already observed.

Much more are we to abstain from these Substances where the Bone is denudated, and the tender Vessels beginning to sprout thro' the Perforations; for aqueous Substances would make these pulposus Vessels become tabid; and oleous Substances would obstruct, and render them impervious. The Pus also, arising in too large a Quantity from the wounded Integuments, or attenuated and render'd acrid by its Retention, may injure the delicate and tender Compages of the sprouting Vessels: Hence Wounds of this Kind are to be gently and cautiously cleansed with soft Lint, lest these tender Vessels should be injured.

jured. 'Tis also obvious, from what has been said, that such Wounds ought to be preserv'd from the Air, lest, by its Coldness, and its drying Quality, it should destroy these Vessels. *Bellosse*, in these Cases, applied a Pledget of Lint, dipt in Spirit of Wine, to the denudated Bone: Over this Pledget he applied a gentle Digestive, which did not touch the Bone, but proved beneficial to the Lips of the Wound made in the Integuments: Thus the Air was excluded, all Putrefaction prevented, and, by the corroborating Quality of the Spirit of Wine, the pulposus tender Vessels are hinder'd from rising in fungous Excreescences. The fine Powder of Mastich, Olibanum, Sarcocolla, and Myrrh, is very properly sprinkled upon denudated Bones, since these Substances cover them over with a balsamic Crust, without proving injurious by their pinguious Quality. They also defend the subjacent Parts from the Air, and from all Fluids discharged in the Wound. With the same happy Success the Powder of these is boil'd in weak Spirit of Wine, for Alcohol would quickly burn these Vessels; and Pledgets, impregnated therewith, are applied to the denudated Bone. Thus,

Take of once rectified Spirit of Wine, an Ounce; of distil'd Rose-water, half an Ounce; and of the Powder of Mastich, three Drams; and, when boil'd in a tall Vessel, preserve it for Use in a long Phial.

Nothing is more carefully to be guarded against than a free Access of the Air, which, by its Coldness and drying Quality, proves prejudicial to all Wounds, but especially those of the Head: Hence the Dressing of these Wounds very seldom cannot be too carefully inculcated. *Bellosse*, in the Cases above-mention'd, suffer'd the first Dressings to remain for two Days; and afterwards only remov'd them every third Day. If, therefore, no Itching, or preternatural Heat, is felt about the Wound, if no fetid Smell is perceived, and no sanious Substance is discharged, such a Wound may safely be left without renewing the Dressings; but when a new Dressing is to be applied, it ought to be done with all Expedition. Let the Pus be imbibed by soft Pledgets, gently applied; then let others of the same Kind be applied, and the Wound cover'd up; for a curious and long Inspection of such a Wound, and a rude and incautious Cleansing of it, will destroy the Mucus lodged in it, which is nothing but the Compages of the sprouting Vessels. It is of singular Service, if, before the Wound is uncover'd, a Vessel is placed on each Side, with live Coals on which a little Amber, Mastich, or Olibanum, has been sprinkled; for thus the tepid Atmosphere, richly impregnated with a grateful, corroborating, and aromatic Steam, will every-where be applied to the uncover'd Wound.

By the Treatment just mention'd a new fleshy Substance arises out of the Punctures, and, spreading all around, covers the Part of the Bone depriv'd of its Periosteum; and then the rest of the Cure is to be perform'd by the Methods specify'd above, when the Periosteum and Bone have received no Injury.

To know in what Sense the Substance which arises from the Punctures may be call'd Flesh, see the Article VULNUS. *Bellosse*, who has given so plain a Description of every Thing which belongs to this Method, says, in very proper Terms, that the Perforations of the Bone, after the second Day, begin to germinate or sprout; for there begins to arise insensibly, from these small Perforations, a sort of Mucus, which, view'd with a Microscope, represents very tender little Vessels, and you may even distinguish the Motion of the small Arteries in this Mucus. A Contexture of Vessels emerging from these little Perforations, and meeting with a like Substance arising from the neighbouring Perforations, weave, as it were, a new Membrane, and that in so short a Time, that *Bellosse*, in those Instances which are given above, observed a denudated Part of the Cranium, of the Compass of a Florin, cover'd over again in the Space of seven Days.

Fourteen Years ago there happen'd a pretty rare Case, which afforded an Opportunity of accurately examining this pulposus vascular Substance, which thus arises from these Perforations made in the Bone. A Man fifty Years of Age, in an acute continual Fever, had, by a sudden Metastasis, in the Space of one Night, all the extreme Part of his Right Foot, about as far as the Place where the Bones of the Tarsus and Metatarsus are contiguous, seiz'd with a Mortification. The Part affected was so perfectly sphacelated, that the Patient felt no Pain from an Incision, made with the Knife, to the very Bone, and no Blood came from the Wound. Remedies being apply'd, in order to preserve the dead Part from Putrefaction, and to stop the Progress of the Sphacelus, the Event was so happy, that the spreading of the Sphacelus was prevented; and, in the Space of five Days, a Line appear'd, separating the dead Parts from the living, which gave good Hopes of a Cure beyond our Expectation. After an entire Separation of the corrupt from the sound

Part, the strongest Tendons being cut with the Scissars by a very dexterous Surgeon, all the fore Part of the Foot was taken off, and the Patient, thus mutilated, escap'd from a very dangerous Disorder, and is still living. In this Case it manifestly appear'd, that the Bones of the Tarsus, which were contiguous to the sphacelated Bones of the Metatarsus, had contracted a considerable Injury; for a good Part of them, which appear'd prominent above the mutilated Member, being quite black, threaten'd to give us more Trouble. This oblig'd us to saw off as much of the corrupted Bones, as could be taken off without hurting the incumbent Parts. However, the dead Superficies of these Bones still remain'd, and was to be separated, before the Wound could be closed, with a good Cicatrix.

A very skilful Surgeon then perforated all this Superficies of corrupt Bones, with very small Perforators, in a Multitude of Places pretty near each other; and in two Days we had the Pleasure to see, that every one of these little Perforations had contracted a Moisture; and, examining the same with a Microscope, it appear'd very distinctly, that in all these Punctures there were small Vessels, which beat with a true Systole and Diastole, that perfectly corresponded with the Pulse of the Patient, felt at the same time in the Carpus. This fully convinced us, says *Van Swieten*, that the Substance arising from these Perforations was really a Contexture of small Vessels.

When a Bone, deprived of its Membrane, is, by this Method, invested with a new one, the Cure is perfected by such Means as are directed above, in case of simple Wounds of the Integuments.

If the Skull itself is injur'd, it will be either crack'd, broken, contused, depress'd, or deprived of a Portion of its Substance, according to the Difference of the Instrument, and the Force with which the Blow was given; and these may happen either in one only, or both its Tables.

Having consider'd the Hurts and Injuries incident to the common Integuments, and the Pericranium, we come now to treat of Wounds of the Head which affect the Cranium; and here, first, are enumerated the different Ways by which the Bone of the Cranium may be injur'd, according to the various Figures of the Instruments by which the Wound is inflicted, or the Degree of Violence of the Stroke.

A Fissure is a Solution of Continuity in a Bone, generally of an oblong Figure, and very narrow, in which there still remains some Cohesion of the Parts. There is a great Variety of Fissures, with respect to their Largeness, their strait or winding Course, and the different Parts of the Cranium affected by them. Some pass no farther than the outer Table, others penetrate into the inner Table of the Cranium, tho' the outer one appears to be sound. Sometimes the Fissure is not in the Place to which the Instrument that gave the Wound was apply'd; but in a different and frequently opposite Part of the Cranium, and is then call'd a *Contrafissure*: Of this there are many Examples in Authors. Thus *Tulpius* relates, that a Man received a Stroke on the Head with a Gun, and, tho' he was immediately trepan'd, died the sixth Day. After his Death the Cranium, tho' found outwardly, appear'd to have several Fissures on the Inside. *Paré* confirms the same by two Examples. A certain Man, by a Blow from a Stone, had a violent Contusion, with a Tumor, and small Wound, made in the Right Bone of the Bregma. Upon dilating the Wound the subjacent Bone appear'd sound; but the Patient died the twenty-first Day after his Misfortune. After his Death, the Cranium being cut out with a Saw, it appear'd, that the Bone of the Bregma, in the opposite Side of the Head, was split. In another Gentleman of Distinction, who died by a violent Contusion of his Head, notwithstanding it was cover'd with a Helmet, the interior Table of the Cranium was so shatter'd, that the broken Splinters thereof stuck in the very Substance of the Brain, tho' the external Table of the Cranium was found entirely sound. *Hippocrates* observed this, and after having recounted the several Methods in which the Cranium could be hurt, he adds this as the last: When, for Instance, the Bone is hurt on the Side opposite to that on which the Wound was received; and he affirms, that there is no Cure for this Disorder, because we cannot discover in what Part of the Head it is lodged. Hence *Celsus*, in the fourth Chapter of his Eighth Book, informs us, "That when any one has receiv'd a severe Blow on the Head, if bad Symptoms ensue, and if the Fissure is not found where the Skin is cut, it is not improper to view whether, on the opposite Side, there is not some Part soft and tumid, which is to be laid open, since the Bone will be found split there; nor is the Skin difficult to be heal'd, tho' the Operation should be perform'd in vain." But all these Things are uncertain, since the Fissure has been often found in the same Bone, tho' not in the Place where the Wound was inflicted: Thus *Joh. Bohnius, de Remuniat. Vulner.* gives us an Account of a Man, who being struck with a Club in the Forehead, near the Right Eye-brow; and who, after his Death, had nothing chang'd

chang'd in that Part of the Bone where the Wound was receiv'd, but in the Orbit of the Right Eye appear'd a Contrafissure of an Inch and half long, reaching to the *Sella Turcica*. It has also sometimes been observ'd, that the Fissure has been propagated from the Part on which the Wound was inflicted, to other Bones of the Head. *Ruyfch*, in his *Observat. Anat. Chirurg. Cent. Observ. 47.* gives us such a Case, where, by the Violence of the Contusion, the Fissure of the Left Bone of the Bregma reach'd thro' all the Bone, then thro' the squamous Suture of the Os Temporum, the whole Os Petrosum, and as far as the large Foramen of the Os Occipitis, which transmits the Medulla Oblongata. From which Case 'tis obvious, that the Sutures do not hinder Fissures of any Bone of the Cranium from being propagated beyond the Limits of that Bone, as many imagine.

A Fracture of the Cranium differs from a Fissure, because in a Fissure, properly so call'd, there is as yet some Cohesion of the Parts; whereas in a Fracture there is a total Solution of Continuity: Hence a Fissure is a small Chink in the Bone, but a Fracture supposes a larger Separation of Parts formerly united. A Fracture may also be of such a Nature, that the broken Piece of Bone may be entirely disengaged from the rest of the Bone, or it may be united with it in some of its Parts. If such an entire Solution is made by the wounding Instrument, the disengag'd Part of the Bone is almost always press'd inwards, and injures the Brain. What *Hippocrates* call'd *ἔσση*, or the Seat or Trace of the Weapon, may also be refer'd to Fracture. When, for Instance, a Wound made with a Hanger carries off all the Integuments of the Cranium, and injures the Bone itself. His Words are as follows: "It is call'd the Trace of the Weapon, when the Bone remaining in its natural Situation, the Instrument leaves a manifest Impression in it." And he afterwards adds, "That the Removal of the Integuments, *διακοπή*, tho' thro' the whole Length and Breadth of the Bone, may be refer'd to the Trace of the Weapon; provided the other Bones, contiguous to this Removal, remain in their natural Situation, and are not press'd inwards by the Wound." For he would no longer have it call'd the Trace of the Weapon, when the Bone, being every-where disengag'd, changed its Situation, and was press'd inwards; in which Case he call'd it *ἔσφλασις*.

The Cranium is said to be contus'd, when by a heavy and obtuse Instrument it is so hurt, that neither Fissure nor Fracture appear; for as a Contusion of the soft Parts may break a large Number of Vessels whilst the Skin remains whole, so likewise, in a contus'd Bone, it may happen, that the Vessels lying between the bony *Laminae* may be injur'd by the Contusion, tho' the Bone appears entire. This Disorder is often long before 'tis discovered, till malignant Symptoms appearing, prove the bad State and Condition of the Bone. This Disorder was, by *Hippocrates*, call'd *ὑλάσις*, and he informs us, that we cannot by the Eye judge whether the Contusion has injur'd the Substance of the Bone more or less, or whether such a Wound has penetrated more or less deep; for if the Vessels distributed thro' the Diploë, situated between the two Tables of the Cranium, are broken by such a Contusion, tho' the Bone should remain whole, yet 'tis obvious, that the worst Symptoms may be produced by the extravasated Humours, the internal Table of the Cranium may be corroded, and the Disorder may thus be communicated to the Meninges and Brain itself.

The Cranium may be depress'd in two manners; for either the broken Part of the Bone, being entirely disengag'd from the adjacent Bones, falls inwards, or the Bone, without having the Cohesion of its Parts destroy'd, is press'd inwards, which principally happens in the Craniums of young Persons, upon the Application of an obtuse wounding Instrument; for in these the Bones, being as yet flexible, easily yield without being fractur'd. Such Depressions are also sometimes observ'd in Adults; for the Bones of the Cranium in a living Man are moist, and far less friable, than in a Skeleton the same Bones appear to be when dry'd. But Depressions of this kind rarely happen to Adults, without being at the same time accompanied either with a Fissure or a Fracture.

The Cranium may be depriv'd of a Part of its Substance, which, in Cuts, is often the Case, when, together with the Integuments, a Portion of the Bone is cut off by the wounding Instrument. This is call'd the *Dedolatio*, or Paring of the Cranium; and *Scultetus*, in his *Armamentar. Chirurg. Observ. 17.* gives us a Case, where a Portion of the Cranium, as large as a Crown-piece, was taken away, and yet the Patient was happily cur'd. 'Tis also certain, that after strong Contusions of the Head, Splinters of Bone have started from the inner Table of the Cranium, and injur'd the subjacent Brain; an Instance of which we have already given from *Paré*.

All these Causes, already recounted, may either affect only the external Table of the Cranium, or the internal alone, or both; but they are always more dangerous in proportion as they have penetrated deeper, in which Case 'tis obvious the Cure must be far more difficult than otherwise.

VOL. II.

Because Wounds of the Skull may have very bad Effects, it is necessary to examine diligently when the Head is wounded, whether the Bone has receiv'd any Injury. But a superficial Scrutiny is not sufficient, of which *Hippocrates* warns us, when he confesses, with the Spirit of a Man of Sense and Honour, that he himself mistook one of the Sutures for a Fracture.

We are enabled to form Judgment whether the Bone is injur'd or not,

First, By considering the Force with which the Wound is given.

This, however, cannot in all Cases be precisely known; and the Appearance of the Wound may possibly deceive us, when it is made with a blunt Instrument, or when it is very small, and accompany'd with a considerable Contusion.

Secondly, By comparing the Size of the Wound with the Part injur'd.

Thus, as has been already observ'd, if the Wound is upon a flat Part of the Head, it may be large, without penetrating deep. But if the Part is very convex, angular, and prominent, the Wound must penetrate deep in order to be large; unless, however, it should happen to be made with an Instrument with a concave Edge, or a sort of Turn should have been given to the Instrument whilst the Wound was inflicted.

Thirdly, By the Probe.

Skilful Surgeons, when call'd to Patients in this Condition, gently wash the Wound with warm Water mix'd with a little Wine, and a few Grains of Salt; then, cautiously drawing aside the Lips, inquire whether any Wound of the Bone is to be discover'd. Then they introduce a smooth blunt Probe, which ought to be small and soft, and is most commodiously made of fine Silver, made red-hot, and then gradually cool'd, into the Wound. Thus, by trying about every-where, they search, first, whether the Bone is laid bare, which will be easily discover'd by the Sound of the Probe upon it; then, running over all the Surface of the denuded Bone, they examine whether any thing rough occurs. That this might be perform'd without any Dread of Danger, *Celsus*, in the fourth Chapter of his eighth Book, advises, "That the Probe should neither be too slender, nor too sharp; lest, when it lights upon some natural Sinuses, it should falsely create an Opinion of the Bone's being broken; nor ought it to be too thick and gross, lest the small Chinks and Fissures should escape its Point. When the Probe has reach'd the Bone, if it appears sound and smooth, it is, in all Probability, entire: But if any thing rough and uneven occurs where there are no Sutures, 'tis a Sign the Bone is broken." Hence 'tis obvious, that we are carefully to observe the Places where the Sutures occur, which, in different Persons, and at different Ages, sometimes vary. Thus the Sagittal Suture, in young Persons, divides the Os Frontis in two to the very Root of the Nose, but is gradually obliterated and effac'd in Persons of a more advanc'd Age; tho', in some Men considerably advanc'd in Years, it is still to be observ'd; for which Reason, in Wounds inflicted on the Forehead, we are always to have a Regard to this Suture. In a very advanc'd Age, and sometimes sooner, all the Sutures are sometimes effac'd and obliterated. According to *Herodotus*, in *Calliope*, after the Battle of *Platæa*, when the bare Bones were all carry'd into one Place, there was one Cranium found which had no Suture at all, but consisted of one entire Bone. It is also observ'd, that, in young Persons, the Sutures are sometimes obliterated: Thus, in the Cranium of a Boy about eight Years old, the smallest Traces of the Sagittal and Coronal Sutures could not be discover'd either in the external or internal Surface of the Cranium. The celebrated *Hunault*, in *Hist. de l' Acad. des Sciences*, for the Year 1734. has observ'd, even in younger Subjects, the Obliteration of these Sutures beginning, for which Reason he thinks, that Cases of this Nature are not so rare as is commonly thought. Besides, in some Places, the Cranium is naturally rough, as in the *Os Occipitis*, for Instance; and sometimes the Sutures themselves differ from each other very considerably in different Men. Thus I myself, says *Van Swieten*, have in my Custody a Cranium, the Sagittal Suture of which, near the Occiput and Forehead, is quite narrow, but, towards the Crown of the Head, is distributed in winding Meanders, so as to take up the Space of almost an Inch. Hence *Hippocrates*, in the Beginning of his Book on Wounds of the Head, justly observes, "That Mens Heads are not universally alike in Shape, nor their Sutures situated in the same Places." See *Tab. 9.*

When, therefore, a Wound is inflicted near a Suture, even after a Search with the Probe, the Case remains dubious, and the Wound of the Bone is with Difficulty discover'd: Thus *Celsus*, in the fourth Chapter of his eighth Book, informs us, that *Hippocrates* himself was deceiv'd in a Case of this Nature. "This," says he, "he ingenuously confess'd, like all truly great Men, who, conscious of their superior Worth, sustain

“ no Loss of Reputation by acknowledging their Errors ;
 “ whereas superficial Geniuses are never fond of losing a
 “ Share of the little they have. 'Tis the distinguishing Cha-
 “ racteristic of every truly great Genius, who, at any rate,
 “ has a sufficient Stock of Merit to recommend him, to con-
 “ fess his Blunders with Frankness and Ingenuity, especially
 “ when they are of such a Nature as to be useful to Posterity,
 “ by preventing their being deceiv'd, and led into the same
 “ Error he himself has committed.”

Fourthly, Pouring some Ink upon the Part has also been recommended as one Method of discovering a Fissure of the Bone, when those above specify'd are not sufficient.

When, from a Knowledge of the wounding Instrument, the Violence with which the Wound was inflicted, and the Malignity of the subsequent Symptoms, such as a Vertigo, Inability to stand, and a profound Sleep, 'tis to be dreaded, that the Cranium has sustain'd some Injury ; and yet, upon laying bare the Part, neither a Fissure nor a Contusion of the Bone can be discover'd either by the Eye or the Probe ; *Hippocrates* prescrib'd another Method for discovering the latent Disorder, which, if neglected, might afterwards induce the most terrible and dangerous Symptoms. For this Purpose he orders the Bone to be cover'd over with some black liquid Medicine, and the Wound to be dress'd with a Linen Cloth soak'd in Oil, over which a Cataplasm of Maize is to be apply'd. Next Day, when the Wound is uncover'd and cleans'd, he order'd the Bone to be scrap'd, by which means this black Substance was left in the Fissure or shatter'd Part of the Bone, whereas the sound Parts appear'd whit. 'Tis therefore obvious, that nothing else is here requir'd, than to apply the black Liquid to the bare Bone, which being again abraded or wip'd off, will appear in the Parts where the Cranium is split or contus'd ; because, as it penetrates farther into these Parts, it cannot be so easily abraded or wip'd from them, as from the rest of the Surface of the denudated Bone.

But 'tis by no means certain, from this Passage, whether for this Intention *Hippocrates* us'd Ink ; tho' *Celsus*, in the fourth Chapter of his eighth Book, seems to have paraphras'd it in this Sense : “ For,” says he, “ if the Fissure is not manifest, Ink is to be laid upon the Bone, and afterwards abraded with a Rugine, in which Case the Fissure, if there is any, will retain Part of the black Substance.”

In *Paulus Aegineta*, *Lib. 6. Cap. 90.* for discovering a latent narrow, and otherwise imperceptible Fissure, there is a black liquid Medicine propos'd, or such Ink as is us'd in Writing [φαρμακὸν τι μέλαν ὡς ἐν ἡμῶν, ἢ καὶ αὐτὸ γρηγορῶν ἐν χυαίνῃ]. Besides, the Antients us'd the Liquor of the Cuttle-fish, and perhaps other Substances, instead of Ink ; at least the Ink now us'd, and which is prepar'd of Vitriol, Galls, the Bark of Pomegranates, and other such astringent Substances, seems very improper for this Purpose, unless when much diluted ; since, if apply'd to the bare Bone, it would forthwith so constrict the tender Vessels, as to destroy them ; after which a mortify'd Scale would of course be separated, and cast off. And there is certainly no Necessity for using Ink for this Purpose, since the Intention may be equally well answer'd by any other colour'd Fluid ; and if a black Colour should seem more proper than any other, the Liquor for answering this Intention might be prepar'd of Bones calcin'd to Blackness, triturated to a fine Powder, and diluted with Water ; as also of various other Substances, more proper than the Ingredients of which Ink is compos'd.

Besides, it seems to be sufficient to tinge the bare Bone with such a Liquid, and afterwards to wipe it off with a Sponge ; nor does it seem necessary to abrade the whole Surface of the Bone with a Rugine, since, by that means, a new Separation might be expected in the abraded Surface, as shall hereafter be shewn. As the Search by the Probe may prove fallacious about the Sutures, and in those Parts where the Surface of the Bone is naturally rough, so this Method may also prove deceitful ; for the colour'd Liquor will insinuate itself into the Interstices of the Sutures, and adhere to the Inequalities of the Cranium.

Fifthly, It may farther give us some Insight into Wounds of this kind, to make the Patient squeeze some hard Substance betwixt his Teeth.

Hippocrates, in his *Prænotiones Coactæ*, when it is doubtful whether the Cranium is fractur'd or not, advises the Patient to take the Stalks of Asphodel or Fennel between his Jaws, and chew them, and at the same time to observe, whether in any Part of the Cranium a Noise is perceiv'd, which will be the Part fractur'd. But it is obvious, that such a Noise cannot be perceiv'd, unless the Fracture is considerably large ; a Fissure, therefore, of the Cranium can never be certainly and infallibly discover'd by this Method. This Sign entirely depends on this, that the Temporal Muscles, which, during the Action of Chewing, press the Inferior Jaw with great Force to the superior, arise broad on both Sides from the lateral Part of the Cranium, that is, from the superior Process of the Os Jugale, from the adjacent Side of the Os Frontis, from the largest Process of

the Sphenoide Bone, from the Os Bregmatis, and the squamous Part of the Os Temporis. Hence, whilst these Muscles act, if in the Neighbourhood of their Insertion there is a large Fracture, the shatter'd Bones may possibly be mov'd, and make a Noise ; and since these Muscles are inserted in so many Bones of the Cranium, and diffuse themselves so far, Fractures in various Parts of the Cranium, provided they are considerably large, may be discover'd by this means. Some Surgeons also order the Patient to bite an Iron Nail for the same Purpose ; or they make him take a Cord in his Teeth, which, when extended, they strike with their Finger, desiring the Patient, in the mean time, to observe whether he perceives any Motion or Noise in his Cranium.

Sixthly, If the Cranium is broken or contus'd, or if white Spots appear upon it, the Sight will direct us to judge of the Injury it has receiv'd.

If the Wound is either spontaneously, or by the Assistance of Art, made so large, that the denudated Bone may be view'd by the Eye, then the Fissures or Fractures, if there are any, will be sufficiently conspicuous ; but where the Bone is contus'd without a Separation of its Cohesion, the Injury will be discover'd with the greater Difficulty, as *Hippocrates* justly observed.

The principal Sign by which, in a Case of this Nature, the Surgeon can be determin'd, is, if the Bone changes its natural Colour, which, for the most part, is somewhat reddish, or a little inclin'd to blue. If pale Spots appear here-and-there, 'tis a Sign, that the subjacent Vessels, which gave their Colour to the pellucid bony Lamina, are mortify'd, and no longer fit for transmitting the Fluids ; whence the Separation of the Lamina, now destitute of the subjacent Vessels, is to be expected.

Seventhly, The Touch will also contribute to the Discovery of the particular Injury done to the Cranium.

We must not here forget to observe, that the Touch of the Fingers is often so deceitful, as to make the Surgeon believe, that the Bone is depress'd, when in reality it is not. In violent Contusions, the Integuments, by being forcibly dash'd against the subjacent Cranium, are often so much injured, that many Vessels being broken, a large and sudden Collection of the discharg'd Humours is form'd under the Skin, which remains entire. If, in such a Case, the Edges of this Tumor are press'd with the Fingers near the sound Part, the Bone appears to be depress'd, the Reason of which Phenomenon is this : The Integuments of the Cranium are considerably thick, and especially the Skin. These Integuments are, by the subjacent Parts, elevated when the cellular Membrane becomes turgid with the discharg'd Humours, and about the Edges of such a Tumor the Skin as yet is contiguous to the subjacent Parts. By carrying the Finger a little farther to the swelled Part, since the Skin is there elevated, the Margin, which is the Boundary between the sound and contus'd Parts, feels as if the Bone was depress'd, because the thick Skin is there elevated from the subjacent Bone and Pericranium. Skillful Surgeons have often been impos'd upon by this Circumstance ; and the celebrated *Ruyseh*, in *Observ. Anatom. Medic. Centur. Observ. 55.* confesses, that when handling with his Fingers a large Tumor of the Forehead, produc'd by a violent Contusion, he should have been tempted to think, that the Cranium was depress'd, as a Surgeon then present affirm'd it to be, unless, by repeated Experience, he had been taught, that in such Cases the Touch might prove fallacious.

Eighthly, The Appearance of the Integuments will also furnish us with Signs whereby to judge of the Injury done to the Cranium, as will likewise a Separation of the Integuments from the Bone about the seventh Day ; great Pain ; an ichorous and fetid Discharge from the Wound ; and an apparent Malignity, not usual when the Integuments only are affected.

From these Signs the Cranium is known to be injur'd, but the Discovery is frequently not made, till bad Symptoms arising, contrary to the Expectation both of the Physician and Surgeon, cut the Patient off. When Wounds are only inflicted on the Integuments, without wounding the Cranium, they are often soon cur'd, tho' pretty large, by observing the Directions already laid down concerning Wounds of the Integuments ; but when the Cranium is injur'd, and the Injury cannot be discover'd by the now enumerated Signs, the Wound is generally treated like a simple Wound, and often the Cure seems to succeed well enough for some few Days in the Beginning. In the mean time the subjacent injur'd Bone begins to become corrupted ; the Integuments are separated from the affected Bone ; the Pain is increas'd ; concocted Pus no longer appears, but only a thin, and often a sufficiently fetid Ichor is discharg'd ; and the Wound, proving obstinate to the best-chosen Remedies, affords a certain Sign of a latent, and still undiscover'd Disorder. But all these Symptoms appear sooner or later, according to the Violence of the Disorder, the Constitution of the Patient, and especially the greater or lesser Warmth of the Atmosphere. *Hip-*

perat.

Hippocrates, in his *Prænotiones Coactæ*, accurately observ'd all these Circumstances; for, after he has recounted the Signs by which Fractures of the Cranium may be known, he adds, "But, in Process of Time, Fractures are discover'd partly on the seventh, and partly on the fourteenth Day, and partly by other Circumstances; for a Separation of the Flesh from the Bone happens, the Bone becomes livid, the Pain is increased, and Ichor is discharg'd; and these Symptoms very difficultly admit of a Cure." And, in his Treatise concerning Wounds of the Head, where he recounts the Signs which prognosticate the Death of a Patient wounded in the Head, he uses these Words: "If the Bone is fractur'd, split, or contus'd, &c. and if Scraping and Cutting have been neglected, upon a Supposition, that it did not stand in need of them, as being sound, a Fever will generally seize the Patient before the fourteenth Day in the Winter, but, in the Summer, after the seventh. A little Ichor will be discharg'd from it, and the inflam'd Part will become mortify'd. When this happens, the Ulcer becomes discolour'd, glutinous, like salted Flesh, (ἄσπερ τελευθῶ) of a brownish Colour, and sublivid; and, when the Bone begins to be corrupted, (σφακελίζειν) becomes black, smooth, and, towards the Margin, pale and whitish; but, when it becomes purulent, Pustules appear on the Tongue, and the Patient, growing delirious, dies." Thus accurately did *Hippocrates* advert to all these Circumstances; for so long as the Lips of the Wound are red, and but little inflam'd, skilful Surgeons are not much afraid of Danger; but when this live Colour is lost, and the Lips of the Wound begin to assume a Colour resembling that of wither'd Flesh, or such as has lain long in Salt, they well enough know, that the most terrible Symptoms are approaching. For this Reason the most skilful Surgeons, after *Hippocrates*, as we have already observ'd, are not so much afraid of terrible Symptoms which appear immediately after the Infliction of the Wound, as of those which appear afterwards, especially about the seventh Day.

For the same Reason *Hippocrates* affirm'd, that, in Wounds of the Head, Fevers which began on the fourth, seventh, or eleventh Day, were generally mortal.

Since, then, even gentle Wounds of the Cranium are often succeeded by many and terrible Symptoms, some of which we have already consider'd, and others of which will be enumerated, 'tis obvious, that this sort of Wound is to be carefully laid open, and cur'd as soon as possible. Such is the Nature of the already recounted Signs, that if many of them concur, they afford a pretty certain Diagnostic; and those hereafter to be enumerated furnish an infallible Proof, that the Bone is injur'd: But then the latent Disorder is often discover'd too late for a Cure, whereas, had it been sooner found out, effectual Relief might have been afforded.

From what has been said, the Reason is obvious, why skilful Surgeons do not neglect, or superficially treat, the slightest Wounds of the Head; since often a latent Wound of the Bone has escaped the most Skilful; and sometimes, when the Integuments are only wounded, the subjacent Bone has been affected by the Pus, or the Atmosphere.

The Effects of the Injuries above-mention'd, done to the Pericranium, are,

First, A Mortification or Destruction of that Part of the Bone, which happens to be separated from the rest.

The Mortification of the Bone is produced by a Destruction of those Arteries of the Periosteum, which convey the vital Juices to the Bone, and an Abolition of those Veins which carry back the same Juices: When, therefore, these Vessels cease to do their Offices, the Plate of Bone, with which they have a Connection, becomes mortified. Whether by a Wound of the Pericranium the Vessels, communicating with the Bone, are destroy'd; or whether the Vessels distributed from the Pericranium, between the Laminæ of the Bone, are obliterated by a Wound of the Bone itself; or whether those Vessels which pass to the Diploë thro' the Foramina or Holes in the external Lamina of the Cranium, are destroy'd, the Effect will be the same; that is, the Part deprived of those Vessels which convey and transmit the vital Juices, will become mortified. Now every Part of the Body, totally deprived of an Influx of the vital Juices, can never be again united with the live Parts; but must always be separated from the adjacent sound Parts: Hence the mortified bony Laminæ are separated and expel'd, in the manner already mention'd, when treating of Wounds of the Pericranium.

Secondly, By the Mortification of the separated Portion of Bone, the adjacent Parts of the Cranium will be infected.

And, *Thirdly*, Hence a Putrefaction of all the Parts, thus infected, may be produced.

The Bones of the Cranium consist of various Laminæ, laid over each other, and between which very tender Vessels are

distributed, at least before an advanced Age, when these Vessels are obliterated and effaced, by a close and near Approach of the Laminæ to each other, as has already been observed. This is also confirm'd by the Experiment try'd by *Bellotti*, in which the Bone was gently perforated, tho' not entirely to the Diploë; and yet Vessels arose thro' the Perforations, by means of which the corrupted Part was separated, and a fresh Pericranium form'd, as we have above observed. There were, then, Vessels in the bony Substance of the external Table of the Cranium, which, being freed from the superincumbent bony Laminæ, and lengthen'd out, constituted this Compages of Vessels, arising thro' the several Perforations. *Tulpius*, in his *Observat. Medic. Lib. 1. Cap. 2.* relates a very memorable Case, which confirms this: "A certain Man was struck with a Musket on the hinder Part of the Head; and tho' no Fissures were to be discover'd in the Cranium, yet the Violence of the subsequent Symptoms was so great, that the Trepan was apply'd; and, whilst the Surgeon was twisting about the Crown of the Trepan, a large Number of small Drops of Blood burst thro' the sound Bone, and, like Drops of Dew, cover'd the whole Cranium. These Drops, being several times wiped off, forthwith burst out afresh." It is therefore obvious, that, in consequence of the Continuity of the Vessels, a Way is open to the Blood from the very Substance of the Bone, since it may burst forth, like Dew, over all the external Surface of the Bone. If, then, the superior Lamina, for Instance, of the Bone is mortified, this Disorder is easily communicated to the subjacent Vessels, by the Injury done to which the subsequent Lamina will be affected: Thus the Disorder may be propagated thro' all the Laminæ of the external Table, which again will affect the Diploë; which, in its Turn, may, in like manner, corrupt the internal Table.

From what has been now said, it is obvious, that, by the Destruction of the Vessels, the Life of the Part is abolish'd; whence the Corruption of the mortified Part spontaneously follows. And we have before given an Instance of a Man dying ten Months after a violent Contusion of the Head, where the Cranium was found entirely putrid and fetid. *Paré*, in the twenty-second Chapter of his tenth Book, gives us a surprising Case, by which it appears, that the Cranium may not only become thus putrid, but also be separated when it is so, the Patient remaining alive at the same time. "A certain Man received a Wound on the Left Bregma with a Sword, which, tho' it wounded the Bone, did not, however, penetrate to the internal Table of the Cranium. When the Wound was almost heal'd, the Patient happening, with his Companions, too wantonly to indulge his Appetite in the Use of rich Wine, and Aliments of a hot Nature, was seiz'd with an acute Fever, a Loss of his Senses and Speech, and a violent Swelling of his whole Head and Face. Some Days after, an Apostem arising in the wounded Part, and being laid open with a Lancet, yielded a large Quantity of Ichor; upon which the whole Substance of the subjacent Bone of the Cranium appear'd black, putrid, and fetid; and a large Quantity of live Worms afterwards form'd their Nest in the Wound. A Portion of the corrupted Bone, as large as the Palm of the Hand, was separated; but the Patient was entirely cured of so terrible a Disorder; only the Cicatrix remain'd for a long time weak, and very sensible of Pain."

Fourthly, A Caries of the Diploë will be produced.

When the corrupted Bones moulder, as it were, into a fine Powder, this is said to be a Caries of the Bones, which is entirely distinct from that Separation of the corrupted Laminæ which is made by Exfoliation. The Diploë, lying between the two Tables of the Cranium, consists of a large Number of Vessels, and the cellular Structure of the Bone: It also contains a medullary Oil, capable of being very soon corrupted. Hence, whether the Wound of the Bone, by propagating the Disorder, at last affects the Diploë; or whether, in consequence of a violent Contusion, the Bone in the mean time remaining entire, the broken Vessels of the Diploë discharge their contain'd Juices; from both these Causes may arise a Corruption of the stagnating and extravasated Fluids: By these corrupted Fluids the tender Vessels, which are as yet entire, may be corroded, and the Disorder thus increased; since, by creeping thro' the bony Cellulæ of the Diploë, between the two Tables of the Cranium, it may diffuse itself very far; and it is, at the same time, obvious, that the Diploë being thus affected, both Tables of the Cranium may be in like manner corrupted: An Accident which is succeeded by a numerous Train of Misfortunes.

Fifthly, A Corruption of the Integuments of the Cranium, and of those of the Brain itself.

The Pericranium covers the convex Part of the Cranium; and the Dura Mater, which is the internal Periosteum of the Cranium, firmly adheres to its concave Part. Both these Membranes distribute Vessels to the contiguous Bone, and receive others from it. And it seems highly probable, that the

Vessels

Vessels of the Pericranium, which penetrate the external Table, do, in the Diploë, communicate and unite with the like Vessels sent from the Dura Mater, thro' the internal Table, to the Diploë. When, then, the Bone of the Cranium is corrupted, and especially when the Diploë itself is thus affected, both the internal and external Integuments of the Cranium may, in consequence of this Communication of Vessels, be equally affected. This is confirm'd by the Instances above related. But when the internal Integuments of the Cranium are thus disorder'd, the soft contiguous Brain is easily affected and corrupted, as we are taught by a Variety of Instances.

Lastly, All those Disorders which proceed from Affections of the Brain, as Convulsions, profound Sleep, Palsey, Apoplexy, and Death.

All Sensations and Motions of the spontaneous and arbitrary Kind depend upon the Brain, as is obvious from Physiological Observations: When, therefore, the Brain is corrupted or injured, either all or only some of its Actions may be disturb'd or abolish'd, according as the Disorder affects either the whole Mass of the Brain, or only some Parts of it; but when the Disorder, being slowly communicated from the wounded Bone, gradually affects the Brain itself, the Symptoms often follow in the Order here enumerated. In Cases of this Nature various Observations also prove, that Patients have sometimes been cut off by a sudden and unexpected Death. It is sufficient to observe here, that all the Disorders of the Brain, from the slightest Vertigo to the most fatal and terrible Apoplexy, have been found to derive their Origin from this Cause.

From what has been said above, relative to Wounds of the Head, their different Natures, and the Prognostics thence deducible, are easily understood.

From what has been already said concerning Wounds of the Head, it may, so far as Art can assist us, be determin'd, whether the Cranium is injured or not; tho', when the Wound is very severe, there is always some Dread of a latent Disorder, tho' it cannot be discover'd by the Senses. When, for Instance, the Cranium is often split in another Part than where the Wound was inflicted, as we have already observed.

But when, by the Signs already specified, 'tis obvious, that the Cranium is wounded, in forming our Prognostics we are always to dread the Symptoms enumerated above; not that they always ensue, but because they may sometimes follow. Prudence therefore requires, that the Danger should be represented to the Patient's Friends, lest the subsequent Train of terrible Symptoms should be ascrib'd rather to the Unskilfulness of the Surgeon, than the Malignity of the Wound: Besides, when both the Patient, and his Friends who attend him, are sufficiently warn'd, that so terrible Symptoms may be consequent to Wounds of the Head apparently very slight and superficial, they will be far more careful in observing the necessary Precautions, requir'd both with respect to Regimen, and the Cure of the Wound; from a Neglect of which a sudden and unexpected Death has often cut the Patient off, when he was thought to be entirely out of Danger.

The curative Indications, hence arising, are,

First, To lay bare the injur'd Bone.

We have much Reason to doubt, whether 'tis always absolutely necessary to lay bare the wounded Part, tho' there should be a strong Suspicion, that the Cranium is injur'd; since 'tis possible, that, when wounded or split, it may again unite, as happens in other Bones of the Body. For this Reason 'tis advisable, as much as possible, to avoid both Extremes; for some Surgeons, in all Wounds of the Head, indiscriminately have recourse to Incision; whilst others, too much under the Influence of Fear, dare not venture upon it in the most terrible Cases. *Ruyssch*, in *Observat. Anatom. Chirurg. Centur. Observ.* 60. who, during a long Course of Practice in a populous City, had seen such a great Variety of Cases, tells us, That, in true Fractures of the Cranium, when the Symptoms are not augmented, we are not immediately to proceed to Incision and Perforation; but that, after Venesection, we are to attempt the Cure by the often repeated Application of warm cephalic Fomentations: And he adds, That he himself had, by this very Method, cured many, after an Incision was just about to be made. *Celsus*, in the fourth Chapter of his eighth Book, informs us, "That, when Bones were split or fractur'd, the ancient Physicians had immediate recourse to Instruments for their Extirpation: But, says he, 'tis far more advisable, first to make Trial of such Plaisters as are intended for Disorders of the Cranium." This Method he order'd to be used till the fifth Day. "But, continues he, if the Flesh begins to grow, if the Fever is either removed, or become more gentle, if the Patient sleeps sufficiently, and his Appetite returns, we are to continue in the Use of the same Medicine. By this Method the Fissures are often fill'd with a kind of Callus, which is, as it were, a Cicatrix of the Bone.

"And Bones so fractur'd, as not to cohere together, are again conglutinated by a Callus of the same Nature. This Callus is a more proper Covering for the Brain than the Flesh; which grows after the Excision of the Bone: But if, in the Beginning of the Cure, the Fever is increased, if the Patient's Sleeps are short, and disturb'd by Dreams, if the Ulcer is moist, and is not nourish'd, if small glandular Tumors appear in the Neck, if the Patient is afflicted with violent Pains, and if his Loathing of Food is increased, we are then to have recourse to manual Operation, and the Use of the Ruyne."

Hence 'tis obvious, that from the Violence and Malignity of the Symptoms we are principally to determine, whether, when the Bone is injur'd, the Place affected ought to be laid bare; or whether there is any Hope left of the Wound of the Bone being cured, without making an Incision.

Secondly, To cleanse the Wound,

By removing whatever cannot possibly be reunited to the sound Parts, as grumous Blood, Fragments of Bone entirely divided from the rest, and corrupted Membranes; or by bringing away, by means of Suppuration, all those partially divided Parts, that will not unite with those which are sound. By these Means whatever impedes the healing of the Wound, whilst remaining in it, is removed; and thus the Cure is facilitated.

Thirdly, To make small Perforations in the Bone,

In the Manner already directed; that,

Fourthly, A new Periosteum, or a Membrane equivalent to it, capable of communicating Vessels to, and receiving them mutually from, the Bone, may be regenerated:

Because the Integuments will not adhere to the Bone whilst it is bare, and destitute of such a Membrane.

Fifthly, To heal the Wound,

By proper Bandage, and the Methods directed above, for simple Wounds of the Integuments, without Contusion.

When the Condition of the Wound, and the Symptoms consequent to it, shew that there is a Necessity of laying bare the Part affected, the Integuments must be cut thro' quite to the Bone, by an Incision, which must be either direct, angular, perpendicular, or decussated, as the Nature of the Place affected, and of the particular Injury received, shall require; taking care to press cautiously on the Bones which are fractur'd, and yield to the Knife.

After the Hairs are shaved off, we must inquire into the Largeness of the wounded Part, and its Situation, with respect to the Sutures, Muscles, and Tendons: By this means we are principally enabled to determine what Kind of Incision is necessary; whether, for Instance, one Incision thro' the Middle of the wounded Part is sufficient; or whether two Incisions are requir'd, which again may be made to denude a larger or smaller Portion of the Bone, according to their various Inclinations to each other; for, if two Incisions are so made as to form an Angle, the whole Portion of the Bone, included within the two Sides of that Angle, may by that means be laid bare; but if one Incision is made by way of a Line, touching the Margin of the wounded Part, and if another Incision is made perpendicular to the former, thro' the Middle of the injur'd Part, 'tis obvious, that by this means double the Portion of the Bone may be denuded. And if this perpendicular Incision should be lengthen'd out, and cut cross the Incision on the Margin of the Part affected, in the middle Point, 'tis obvious, that by this means four right Angles must be form'd, and consequently a Portion of the Cranium, four times as large, must be laid bare, as by that Method in which the two Incisions form'd only one Angle. This is call'd a decussated or crucial Incision of the Integuments, which, because it denudates the largest Portion of the Bone, *Celsus*, in the fourth Chapter of his eighth Book, affirms to be the most commodious. "This Incision, says he, is most properly made by two transverse Lines, in the Form of the Letter X, that the Integuments may be raised from each of the four Angles." But, at present, such an Incision is only made as is sufficient for laying bare the Part affected; and it is obvious, that a single Incision is only required, when the injur'd Part is so small, as to be exposed to the Eye by the receding or gaping of the Lips of the Wound. But an angular Incision is proper when the Part injur'd is not excessively large, but yet too large to be laid bare by a single Incision. But when a large Portion of the Bone is to be laid bare, that Method is to be used in which a strait Incision is made, by way of Tangent to the Circumference of the Part affected, and another made to fall perpendicularly upon it, thro' the Middle of the injur'd Part: And, where a still larger Portion of the Bone is to be denuded, a strait Incision is to be made thro' the Middle of the Part affected, and another made so as to cut it in the Middle at right Angles: Thus the four Angles of the cut Integuments

Integuments being raised, the whole Portion of the Bone, contained within the Extremities of these two Incisions, may be laid bare.

This Incision ought to be made with a Knife which is sharp, and sufficiently strong, lest its Edge should happen to be blunted; for the Skin of the Cranium, in consequence of its hard and callous Nature, requires a considerable Force to cut it.

The Edge of the Knife ought to be carried immediately to the Bone, that, by striking upon it, the Pericranium may also be divided by one and the same Incision: "Lest, says *Celsus*, (in the fourth Chapter of his eighth Book) any Part of the Membrane which surrounds the Cranium, below the Skin, should be left undivided; for a Laceration of this Membrane, with Rugines and Perforators, excites violent Fevers and Inflammations." For, whilst the Incision is making in the Integuments, if the Edge of the Knife does not run close upon the Bone, there is a Necessity for dividing the Pericranium afterwards. 'Tis, indeed, true, that, by the Knife, a kind of Furrow is made in the Bone; but, tho' this cannot be avoided, yet the Injury done the Bone may be easily cured, after the Part affected is laid bare.

Since, then, for this Purpose, 'tis necessary, that the Knife be pretty strongly apply'd to the Bone, it is obvious, that we ought carefully first to examine, whether the Cranium is so fractured, as that the shatter'd Parts may be depress'd by the Application of the Knife to the Bone; from which the most terrible Symptoms, and sometimes Death itself, may ensue, as is plain from various melancholy Instances. When, therefore, by feeling every-where with our Fingers, we discover something loose, the Incision is to be so made as to avoid this Place; but where a violent Contusion has raised a large Tumor on the Part affected, it is often very difficult to discover, whether the fractured Bone is loose and yielding, or not.

We must also be as careful as possible not to cut the large Arteries dispersed thro' the Integuments. The remarkable Ramifications of Nerves dispersed, for Instance, in the Forehead, above the Orbit of the Eye, must carefully be avoided: As also the Muscles, Tendons, and Sutures, the Situations of all which are to be learned from the Anatomy of the Parts above given.

Sharp says, That if the Fracture be not complicated with a Wound of the Scalp, or the Wound is too small to admit of the Operation, which seldom fails to be the Case, then the Fracture must be laid bare, by taking away a large Piece of the Scalp. It is a Fashion with some Surgeons to make a crucial Incision for this Purpose, which they prefer to all other Methods, upon the Supposition, that the Wound will more easily heal again after the Operation, by turning down the Flaps; and in case we find no Fracture, which sometimes happens, after Scalping, that, by making this Species of Wound, an Exfoliation of the Bone, and a Tediousness of Cure, will be avoided. But whoever has seen the Practice of the crucial Incision, must be sensible of the false Reasoning used in its Favour; for it seldom or never happens, that we inquire for a Fracture of the Skull by scalping, but that the Scalp itself is contused, which Circumstance bringing on a plentiful Suppuration, and the Matter lodging between the Cranium and Skin not only prevents their immediate healing, but generally occasions a Caries of the Bone, which is the Accident meant to be shunned by it; and frequently at last the Lips of the Wound, growing callous, require cutting off to procure a Cicatrix. If then the Objection be good to the crucial Incision, when no Operation is perform'd, it becomes of so much more Force when we are assur'd of using the Trepan, that he thinks it is indisputably right at all times to take off the Scalp, when we lay bare the Cranium with a View to the Operation, which seldom fails to granulate with Flesh in a few Days, if dress'd only with dry Lint, and rarely grows carious, if not affected by a great Discharge of Matter from the Brain; or if, after it is thus expos'd, new Flesh should not generate upon its Surface, the Growth of it may be quicken'd by boring little Orifices into the Substance of the Bone, or rasping it with the Rugine. The Form of the Piece taken away may be nearly circular; and, to be better assur'd of the Course of the Fracture, it will be proper it should be of the whole Length of it. He believes there are few who will care to expose so much naked Skull; but whoever knows the great Advantage, and the little Danger of it, will not hesitate. When the Scalp is remov'd, the Periosteum must be rais'd, and the Arteries immediately ty'd, which will make Way for the Operation to be directly perform'd; tho' the Effusion of Blood has been esteem'd so troublesome in this Part, as to have made it almost an universal Practice to postpone the Use of the Trepan to the Day after: But the Apprehension is without Foundation; for if two or three of the larger Vessels are ty'd, the others may easily be stop't with a little dry Lint, and the Operation take place without any Inconvenience; which he has always done himself, and would recommend to others, considering how urgent the Nature of the Distemper is, and that less than twenty Hours is often the Difference between Life and Death, when the Brain is much press'd by a fractured Bone. *Sharp*.

VOL. II.

The next Step to be taken is, to separate exactly the Parts cut from the Cranium, by the Rugine, an Instrument of which there are various Forms, represented *Tab. 28. Fig. 3, 4, 5*.

The Pericranium, as has been already observ'd, adheres pretty firmly to the Cranium, by means of the Vessels it sends to it, and receives from it. Hence, tho' all the Integuments, together with the Pericranium, are cut, they will, nevertheless, by a broad Surface, adhere to the Cranium. For this Reason, before the bare Bone comes in View, the Pericranium must be separated from the Cranium. Sometimes, upon elevating the Angles made by Incision, the Pericranium follows, and is separated from the Bone, especially when it adheres but loosely to it, as is observ'd in old Patients; but when it adheres strongly, as it often does, it is as soon as possible to be abraded from the Cranium with a well-polish'd Ivory Rugine, which cannot be done without a very intense Pain, unless the Patient is quite stupid and lethargic, as it often happens in violent Wounds of the Head. It were, therefore, to be wish'd, that young Surgeons would exercise themselves on the Heads of Calves or Sheep, in order to learn, by a dexterous Use of the Rugine, to make a speedy Separation of the Pericranium from the Cranium, since to acquire a Dexterity of this kind upon Men is both cruel and dangerous.

The next thing to be done is, to stuff the Wound, thus made, with dry Lint.

When the Integuments are thus separated, the Blood discharg'd generally hinders the Wound of the denudated Bone from being accurately discover'd. For this Reason, except the utmost Danger presses, a farther Examination of the Wound is generally defer'd till next Day, or at least for some Hours. But lest the Parts lately divided should grow together again, which they are very soon observ'd to do, flat soft Pledgets of Lint are applied to the denudated Bone under the elevated Integuments, by which means this Accident is prevented. Thus, when the Hemorrhage is stop'd, the Pledgets remov'd, and the Integuments rais'd, the whole Surface of the denudated Bone appears. By this means *Hippocrates*, in his Treatise concerning Wounds of the Head, informs us, that next Day the Wound will be sufficiently large: He also orders a Cataplasim to be applied, of fine Flour boil'd in Vinegar till it becomes highly glutinous, to prevent too great an Inflammation; for the dry Pledgets, by absorbing the Blood, and other Juices, become tumid, and dilate the Wound, which always produces a kind of Irritation and Inflammation. See the Quotation above from *SHARP*.

The Blood, Pus, Sanies, and Sordes, must be absorb'd by Sponges; the Fragments, Splinters, and Scales of Bone, if small, not adherent to any Membrane, and in Sight, must be taken away by the Forceps, or they may be cut away by the Scissars. This is an artificial Mundification.

When the Pledgets are remov'd, and the Blood and all manner of Sordes, which may hinder a full View of the expos'd Superficies of the Bone, are absorb'd, we are next to search with all possible Care, whether there be any thing that requires to be taken off, or set to rights. If there appears no Fracture nor Contusion of the Cranium, nor the least Sign of a Fissure can be discover'd, and there seems no Reason to suspect an Extravasation of Humours within the Cranium, which would require Perforation in that Place, in order for their Extraction, the Wound is to be incarn'd and consolidated again. The most experienc'd Physicians and Surgeons have been subject to Mistakes in this Affair, when they have concluded, before Scalping, as they thought, from evident Signs, that some Defect or Disorder lay in the Place to be open'd. Observations and Examples to this Purpose are very numerous: *Hippocrates* observ'd, that sometimes the Bone is fractur'd in a Part remote from the Place where the Wound was receiv'd; and it appears, from Observations made by very good Authors, that the Case may be always dubious; and therefore it is the best way to tell the Patient and his Friends before-hand, that all the Signs indicate the laying open of the affected Part, in order to discover the latent Disorder, which yet may be seated in another, and perhaps remote, Part of the Head. A prudent Surgeon, therefore, consults with a Physician, or some other Surgeons, what is to be done in such Cases; by which means he will, at least, reap the Advantage of having some to attest for him, that all things have been perform'd according to the Rules of Art, tho' the Event did not answer his Wishes.

When it appears, that the denudated Bone has been injur'd, the general Indication directs the Removal of all those things which may possibly obstruct the Cure of the Wound. Any Effusion of the Humours which adhere to the Part, and incommode it, are easily absorb'd with Sponges, or dry Lint; but Fragments of Bones, small Splinters, and Scales which separate themselves, or are separated by the Instrument, are to be regarded as heterogeneous Bodies, which may do Mischief by

their Presence, and much retard the Cure of the Wound. But first, as has been observ'd, we are to consider whether they may be remov'd without injuring the Part, or whether it would be safest to leave them till they separate, and fall off of themselves. If the Fragments of the Bones are but small, and no longer cohere to the living Parts, there is no Hope of their Reunion, and they may be safely remov'd with proper Instruments. But since the Bones, being depriv'd of their Periosteum, may be very much injur'd by the free Access of the Air, as is said above, it is requir'd also, that these Fragments should appear to View in such a manner, as to be readily separable, and not to give Occasion for long exploring a Wound of such a Nature with Instruments. It is no less dangerous to pull away by Violence any bony Fragments which continue to adhere to the Membranes, since the Vehemence of the Pain, and the Connection of the Pericranium with the Dura Mater, especially about the Sutures, may produce very bad Effects; but if there is a Necessity of their being remov'd, it is better to cut them off with the Scissars.

That Depuration of a Wound, which is thus perform'd with the Hand, or with an Instrument, is call'd *artificial* Mundification, to distinguish it from what arises spontaneously by Suppuration, and is for that Reason call'd *natural*.

If the Fragments, Splinters, or Scales, are very large, with any considerable Adherence, or if they are so conceal'd as not readily to be come at, they are to be left; and they will either separate spontaneously, or unite with the other Parts. This is a natural Mundification.

If the Fragments of the Cranium are very large, we are to examine whether they are corrupted to such a Degree as to leave no Hope of their reuniting with the other Parts of the Bone. This is principally known by the Change of Colour; for if a Fragment of a Bone be turn'd yellow, brown, or black, it will never grow again, but will spontaneously separate in some Time, or is to be remov'd immediately, if it may conveniently be done. But when such Fragments retain their natural Colour, and especially if they still cohere to the Pericranium, there is great Hope, that they will grow again. It sometimes happens, that in Fractures of large Bones, the Tibia, for Instance, or Os Femoris, the middle Fragment is entirely disunited from the other Parts on both Sides; and yet it has been frequently observ'd, that such Fragments have united and grown together again with the rest of the Bone; therefore we are not to despair of the same Event in the like Fractures of the Cranium, agreeably to the Observations of Surgeons. A Man receiv'd so severe a Kick from a Mule shod with Iron, that the Os Frontis was fractur'd and depress'd. A round Piece was cut out of the Cranium with the Trepan, that the fractur'd and depress'd Bone might be the more conveniently elevated, and taken out; but as the Fracture reached from the Middle of the Forehead to the lesser Canthus, M. *Paré* would not venture to take out so large a Portion of Bone, but elevated the broken Bone so as that it might no longer press upon the Dura Mater, and the Patient was happily cured. And a Fragment of a Bone, which was entirely separated from the rest of the Cranium, but cohering to the Pericranium, has been known to grow together again. A Captain had a large Portion of his Os Frontis, being about three Fingers Breadth in Length, and as many wide, cut off with a Sword, so that the Dura Mater was quite naked, and expos'd to View. This large Fragment of Bone still cohering to the Pericranium, together with the Integuments hanging over the Face, was a dismal Spectacle, and *Paré* was thinking of cutting off the Whole; but fearing lest the Dura Mater, being left bare, and expos'd by so great a Wound, might be very much injur'd, he wip'd off the Blood which cover'd the Dura Mater, he adapted to it the cut Bone with the Integuments, and secur'd the Whole with a slight Suture in three Places, that it might not be easily mov'd out of its Place. The good Success of this Method shew'd what might be expected in the like Cases, when so large a Portion of Bone, entirely cut off, had yet the Power to grow again, and that upon a Man who had receiv'd several other Wounds.

As long, therefore, as such Fragments adhere to the quick Parts, they seem proper to be left, because there is Hope, that they may be reunited with the rest of the Bone; but if this should not succeed, and there are Signs, that these separated Fragments begin to corrupt, they may be always taken out, or they will separate spontaneously. Hence it appears, that it is prejudicial to be too curious in searching Wounds of the Head, in order to the Extraction of such Fragments of Bones as do not immediately present themselves in View; for if they cohere in any Part to the living Corpuscles, they may possibly unite; or if they are incapable of ever growing again, they will separate themselves by spontaneous Suppuration. Nature often knows how to provide for its own Security in the most dangerous Cases, as we are taught by the following History: A Girl, nine or ten Years of Age, receiv'd eighteen Cuts on the Head with a Sword, besides some others on the Arms and Body. All these Wounds on the Head affected the Cranium, and took off some

Portions of Bone home to the Diploë; and in other Places the whole Cranium, quite to the Dura Mater, was cut away. This miserable mangled Head was dress'd with a proper Bandage, and was open'd only once in two Days. Every Dressing Splinters of Bones adher'd to the Pledgets, and separated themselves without giving any further Trouble; and those Fragments, which still coher'd to the Pericranium, grew together again, and readily fill'd up the Places where the whole Cranium had been taken off; so that in the Space of five Weeks this Girl, who had receiv'd so many Wounds, was cur'd of them all. But it is to be observ'd in this Case, that there was no artificial Mundification; for whatever was incapable of growing again, was separated by a spontaneous Suppuration.

It is therefore very prudently observ'd by *Hippocrates*, in his Treatise on Wounds of the Head, "That those Bones which are violently alter'd from their natural State, and depress'd inwards by a Fracture, or entirely cut off, are less dangerous if the Membrane remain entire; and Bones affected on the Inside with more and wider Fissures are less dangerous, and more easily extracted; for none of these needs Section, nor must we try to remove them by violent and dangerous Means, before they make their own Way out spontaneously."

If the Bone appears to be contus'd, white, brown, livid, or crack'd, a great Number of small Perforations must be made in it, in the Manner directed above, that, thro' these, live Vessels may sprout out, and the stagnating and putresc'd Humours may be discharg'd: For by these means a new Periosteum is generated.

It sometimes happens, that after the Integuments are taken off, no Fracture appears in the Bone, tho' it may be much injur'd; and this is principally observ'd when the Wound was made by a blunt Instrument, or the Patient fell with his Head upon a plain and hard Superficies. For, in such a Case, either the Bone of the Cranium is crack'd, the Integuments of the Head frequently remaining entire; or the Pericranium suffers such a Pressure and Attrition between the resisting Body imping'd against, and the hard Bone of the Cranium, as to cause a Rupture of the Vessels which keep up a Communication between the Cranium and Pericranium, whence follows an Abolition of all vital Influx into the Lamella of the Cranium, which is contiguous to the Pericranium; and it is evident, that the Vessels lying between the Lamellæ of the Cranium may be injur'd by the same Causes, whence the Disorder will be increas'd. This Contusion and Destruction of the Vessels in the Bone of the Cranium are known by the Colour of the Bone being chang'd: For sound and living Bones are naturally reddish, or of a bluish white, because the vital Vessels, which are full of a colour'd Liquid, appear thro' the Lamella of the Bone, which is white, and, by reason of its Thinness, pellucid, of such a Colour. Where-ever, therefore, the Vessels situated under the osseous Lamellæ are destroy'd by a Contusion, there will be a Whiteness; for which Reason, among the Signs of an injured Cranium, pale Spots upon it are enumerated above; and *Belleste, Chirurg. d' Hospital*, after perforating the Cranium, depriv'd of its Membrane, with minute Punctures, mentions it as the first Sign of a happy Event, for the Bone to begin to turn reddish, as being a manifest Indication of the Return of Life into it, whereas it was before depriv'd of the Influx of the vital Humours. When the Bone, after the Destruction of its Vessels, begins to corrupt, the white Colour changes to yellow, brown, livid, and even quite black, the Degrees of its Corruption increasing in proportion as it alters more and more from its natural Colour, as has been already observ'd.

In such a Case, therefore, as it is to be fear'd, that this Corruption of the Bone should infect the subjacent and contiguous Lamellæ, and that the Contagion should spread to the Diploë, with the subjacent vitreous Table, and afterwards to the Brain itself, and the more, because the extravasated and corrupted Humours have no Passage thro' the entire Superficies of the contused Bone, hence, again, appears the excellent Usefulness of the Method before describ'd, which directs the making of small Perforations here-and-there in the Cranium, that the extravasated Humours may find a Way to discharge themselves, and the living Vessels underneath, being freed from this hard Covert of a dead Bone, may be enabled to emerge and cast off all that is dead and corrupted. For the Separation of the corrupt Part of the Bone is only to be expected from the subjacent living Vessels, as *Hippocrates* long ago observ'd, *Lib. de Cap. l'uln.* where, after he had advis'd to make no rash and dangerous Attempts to extract the Fragments of Bones, but let them alone to be work'd off spontaneously, "which is done by the growing of Flesh under them, which Flesh grows out of the Diploë, and the sound Part of the Bone, if only its upper Part be corrupted." Thus did *Hippocrates* learn from Observation alone, what the Industry and Experience of the Moderns have confirm'd the Truth of: For the ancient Physicians gave the Name of *Flesh*, which is the Word used also by Moderns, to that Contexture of Vessels, which, sprouting up in Wounds,

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restores, by its Growth, the Loss of Substance in them. *Hippocrates* adds, what deserves our Notice, that this *Flesh* pullulates from the Diploë, thro' which such manifest Vessels are dispers'd; he observes also, that when only the superior Lamellæ are corrupted, this *Flesh* grows out of the subjacent sound Part of the Bone, and not from the Diploë.

In the Case of a Fissure the same Method will have a like Effect; for all the bad Symptoms, consequent upon a Fissure, depend principally upon the Rupture of a great Number of Vessels, and a Detention of the extravasated Liquids, whence the Bone is corrupted, which is attended with many other Evils. But if the Bone have little Perforations made in it about the Place of the Fissure, there are Outlets open'd for the extravasated Humours, and an easy Way made for the living Vessels to stretch, and to work themselves thro', and to weave themselves into a new Pericranium.

How expeditiously a Cure may be perform'd by this Method, and even when the Cranium has receiv'd considerable Damage, appears from what has been said above.

When a new Periosteum is generated by the Method above directed, the rest of the Cure is to be conducted as in simple Wounds of the Integuments.

From what has been said above the Reason is evident, why a small Fissure is frequently more dangerous than a large Contusion of the Cranium.

All skilful Physicians and Surgeons agree, that a Fissure of the Cranium is frequently of far more dangerous Consequence than a violent Contusion, or a Fracture itself.

For a Fissure is more difficult to be known, and frequently is not discover'd till late, especially if it lies about the Sutures, or affects only the inner Table of the Cranium, the outer remaining entire; and so also when the Fissure is to be found in a Part of the Cranium remote from the Place where the Wound was given. To these Reasons may be added, that a Fissure, tho' it appears in View, frequently runs too far for the Surgeon, with any Safety, to lay it all open by cutting away the Integuments. That all these Cases may one time or other happen, has been prov'd by very credible Observations, which are given above.

But when the Bone receives a large Wound, it lays itself open to View; and the Physicians and Surgeons, being mov'd with the formidable Appearance, try all their Skill, in order to prevent the threatening Danger; whereas a Fissure, which is so often conceal'd, and sometimes discoverable by no Sign at all, may deceive the most skilful Practitioners, as *Hippocrates* ingenuously confesses of himself.

Another Reason why a small or strait Fissure is accounted so dangerous is, because it cannot be certainly known how far it has penetrated, whether it be only to the Diploë, or deeper. If the Fissure reach to the Diploë, some considerable Vessels must be broken, and the extravasated Humours, finding no Way thro' the strait Fissure of the Bone, will be corrupted, and destroy the tender cellulous Part of the Bone which constitutes the Diploë, and extending themselves between the two Tables of the Cranium, will corrupt all before them. The inner Table of the Cranium being corroded, and eaten thro', the Brain itself may come to be affected, and so the Patient may die suddenly when he was thought to be in perfect Health, tho' afterwards it appear otherwise, when the whole Bone is found corrupted. Many Examples of this kind are to be met with in Authors. But when there is a large Wound made in the Cranium, there is a Passage laid open for the extravasated Humours, or a Way may be made by Art for their Discharge, and the living Vessels underneath will have Strength sufficient to separate the corrupted Parts. For these Reasons very formidable Wounds of the Head, wherein the Cranium has been very much injur'd, have often been happily cur'd, when a slight Fissure, not discover'd till too late, has frequently carry'd off the Patient on a sudden, when he mistrusted no Harm. *Hippocrates*, therefore, *de Locis in Homine*, takes the Liberty to assert, "That if the Bone (of the Cranium) be fractur'd and contus'd, it is void of Danger; but if it be crack'd, and the Fissure proceeds inwardly, the Case is very dangerous." He adds, that the Saw is to be us'd, in order to prevent the Sanies from flowing thro' the Fissure of the Bone upon the Dura Mater, and so putrefying the same. And, *de Cap. Vuln.* he says, that a Fracture of the Cranium, or a large Piece of it cut away, or the Bone divided by many and large Cracks, are none of the most dangerous Cases. Besides, it is to be consider'd, that the Cranium can receive no Fissure, without being at the same time more or less contus'd; by which means a more considerable Number of Vessels in the Substance of the Bone, or dispers'd in the Diploë, happens to be broken, whence every bad Symptom is exasperated.

It is farther evident, that this Method of boring small Perforations, is preferable to Burning, Scraping, or the Application of that sort of Trepan us'd by the Antients on these Occasions.

From what has been said above, it appear'd, that the Piercing of the Cranium with small Perforations was both a safe and speedy Remedy for the Disorders there mention'd, and, consequently, to be prefer'd before all other Methods. And tho' we meet with something of this kind in *Hippocrates*, as we said before, yet in his Time they commonly us'd a Rachine, in order to separate the corrupted Part of the Bone by Abrasion. But if we thoroughly consider all the Effects which necessarily follow from this Practice, we shall find it to be less safe, and to conduce very much to the Prolongation of the Cure. Some Surgeons have recommended Burning with a hot Iron, but I do not remember, that this has been mention'd by *Hippocrates*, nor by *Celsus*; and indeed it would be very difficult to burn the corrupted Part of the Bone, without hurting the sound Part which lies under it, which, in that Case, requires a new Separation before a Cure can be expected.

Where a small Fissure, or the Mark of the Weapon, appeared in the Bone, the Antients us'd Rachines of various Figures and Sizes answerable to the present Occasion, with which they abraded the Bone, till there was no Sign of a Fissure, or Mark of a Weapon, left: And that they might be sure, that the Fissure was quite abolish'd, they first mark'd the Bone with Ink, or some other black Liquors, (see above) which, penetrating into the Fissure, might shew how deep it reach'd; for they continu'd rasping or scraping till the Black quite disappear'd. If the Fissure penetrated deep, and could not be obliterated by scraping, they had recourse to the Trepan, with which they cut out a good Piece of the Bone. Where a large Part of the Cranium had been damag'd by a Contusion, and it appear'd by the Signs, that the Bone was corrupted, they us'd what they call'd the *exfoliatory Trepan*, which consisted of two Wedges plac'd in a contrary Direction: This they turn'd about, and so wore away the Superficies of the Cranium by an orbicular Abrasion. And because the Superficies of this Bone is convex, and in some Places unequal, it is evident, that the Abrasion of the corrupted Part cannot be equal in all Places. Besides, after the Fissure had been obliterated, or the corrupted Part of the Bone taken away by means of the Rachine, or the exfoliatory Trepan, the abraded Superficies of the Bone remain'd dead, because of the Destruction of all its Vessels; and therefore it requir'd to be separated, before the Part could be invested with a new Pericranium. It appears, therefore, that not much Good is to be expected from these Proceedings; but, by the Method above recommended, the Separation of the corrupted Part is neatly perform'd, and at the same time the lost Substance is quickly regenerated.

When the Cranium is press'd inwards, in young Subjects, without Fracture, or, in older Subjects, with Fracture, the Brain must be compress'd. Hence, according to the Difference of the Part compress'd, and according to the various Degrees of Magnitude, Profundity, Sharpness, and Puncture of the Part compressing, Dulness of the Senses, Lethargy, Vertigos, Ringing in the Ears, Deliriums, bilious Vomiting, Pains of the Head, Convulsions, Palsies, involuntary Discharges of the Urine and Fæces, Apoplexies, Fevers, and Death, are produc'd.

Having spoken of Disorders consequent upon Hurts of the Bone of the Cranium, we are now to examine what Effects will be produc'd from a Compression or Hurt of the Brain by the Cranium, when press'd inwards, or beaten in upon it by a Fracture. It appears from Geometry, that among Figures of equal Perimeters, the Circle comprehends the greatest Space; but the Figure of the Cranium is nearly spherical, and therefore, if it be press'd inwards, its Capacity must be diminish'd. It is known also from Physiology, that the Cavity of the Cranium is always quite full in Health; whence, if the Cranium be cut away, the Brain swells, and elevates itself, to such a Degree, that the Part of the Cranium, which is cut off, can never be fitted again to its Place, unless it be by Violence. It is plain therefore, that as soon as the Figure of the Cranium is chang'd by Intropression, the Contents of its Cavity must of Necessity be compress'd.

Whether, therefore, the convex Figure of the Cranium be chang'd by Intropression without a Fracture, or the fractur'd Bone be forc'd from its Place, and depress'd, the Effect will be the same, which is a Compression of the Brain. In young Subjects the Softness of the Cranium is enough to persuade us of the Possibility of an Intropression without a Fracture; but the Firmness of that Bone in Adults seems to shew the Necessity of a Fracture in order to such an Effect. *Hippocrates*, *Lib. de Cap. Vuln.* enumerating the various Species of Fractures of the Cranium, reckons this Intropression in the third Place, which he calls *εσθλασις*, (*Esphlasis*) and says it was always attended with Fissures. "For what is press'd inwards is fractur'd, and broken off from another Bone, which continues in its natural State; and such an Intropression must necessarily be accompany'd with a Fissure." But the Substance of the human Bones is much softer in a living Body, than it appears to be in dry'd Skeletons; for which Reason it is not, perhaps, altogether impossible for

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for a Depression of the Cranium to happen without a Fracture in adult, tho' not in very old Persons.

But since the Whole of the human Life and Nature depends on the Things contain'd within the Capacity of the Cranium, and the whole Substance of the Brain is soft, and easily compressible, it appears, that all the Functions which depend upon the boundness of the Brain, may be disturb'd, and even totally abolish'd, by an Intropression of the Cranium. And because the Cerebellum is a firmer Substance, and more safely lodg'd, than the Brain; hence it is, that the ill Effects produc'd by an Intropression of the Cranium primarily affect the Actions of the Brain, but at length extend their mischievous Influence so far as to destroy the Action of the Cerebellum, on which Life depends. It appears also, that the Effects of this Disorder are various, according to the different Places of the Brain which suffer the Compression; or as the compressing Cause acts with more or less Violence; or, lastly, as the sharp Fragments of the Bone penetrate more or less into the Substance of the Brain. That a slight Compression of the Brain may disturb its Action, appears from an extraordinary Case: A Woman who had half her Cranium taken away, went about the Streets with it, begging from Door to Door, where, if any one touch'd the Dura Mater, which lay bare, with the Tip of his Finger, tho' but slightly, she cry'd out aloud, saying that she saw a thousand Candles. *Mem. de l' Acad. des Sciences.*

As to Dulness of the Senses, it is a Symptom consequent to a very slight Compression of the Brain. In all those who are apoplectic from a cold and viscid Cause, there is first observ'd such an unusual Hebetude of all the Senses, with a Slowness and Indisposition to muscular Motion, which are Signs of a gradual Collection of such Humours in the Cranium, as, by a slight Compression, blunt and obscure the Vivacity of all the Senses, and are at length accumulated to such a Degree, as wholly to extinguish them. If the Cranium, by Intropression, affects the Brain, by compressing it in a slight manner, a like Dulness of the Senses is produc'd, which remains during Life, if the compressing Cause be not remov'd. We have an Example in *Hildanus, Observ. Chirurg. Cent. 3. Observ. 21.* to this Purpose: A Boy, ten Years old, of promising Parts, had his Cranium, near the Lambdoidal Suture, depress'd by a Fall. Because no threatening Symptom follow'd the Misfortune, the Parents neglected the Case, and the Impression in the Bone continu'd. By Degrees the Boy's Memory and Understanding began to fail him, so as to render him utterly incapable of learning any thing; and in this stupid Condition he liv'd to the fortieth Year of his Age, and then dy'd of the Pestilence. A like Hebetude is observ'd when the Blood, in too great a Quantity, distends the larger Vessels in plethoric Habits; or when, in acute Distempers, it has its Velocity increas'd, and becomes rarefy'd to such a Degree as to dilate the Vessels, which by that means press upon the pulposus Substance of the Brain.

A Lethargy indicates an increas'd Compression of the Brain; for, as soon as the Causes which produced a Dulness of the Senses are increas'd, there arises a Drowsiness, and at last a most profound and mortal Sleep, which is the same as an Apoplexy. Hence, among dangerous Symptoms from Wounds in the Head, *Hippocrates, de Vuln. Cap.* reckons profound Sleep, and Vertigo, accompany'd with Dimness of Sight.

A Vertigo is one of the slightest Disorders which belong to the Brain; for almost all of them begin and end in a Vertigo. In every Vertigo there is usually an apparent Rotation of external Objects, which are really at Rest; sometimes all things seem to fall downwards, or the contrary. When the Disorder increases, the Objects appear of various Colours, and soon after follows a Tottering of the whole muscular Frame. The Patient begins to be afraid of falling, and catches hold of every thing near him to sustain himself; his Nerves fail him all at once, so that he falls to the Ground; and at the same time Darkness overwhelms him, and takes away all Sense of Seeing. And this is the utmost which the Patient is sensible of; for, if the Disorder proceed farther, it terminates in an Apoplexy, Epilepsy, or Lipothymy.

The slightest Vertigo, then, is when there appears a Rotation of all Objects; as the Disorder increases, there comes on a Dimness, and then the Disease is call'd *σκότινός*, (*Scotodinos*) a dim or dark Vertigo; at length the Patient falls to the Ground. *Hippocrates*, in the Book before quoted, among other Symptoms of dangerous Wounds in the Head, reckons up these three: Dimness of Sight, Vertigo, and Falling to the Ground. When *Antiochus* wounded his Enemy in the Forehead, so that the Point of his Lance penetrated the Bone, the Eyes were cover'd with Darkness, says wise *Homer*: *τὸν δὲ σκῆπτρόν τε καὶ ἄλυστον*, *Iliad. 4.*

A simple Vertigo, then, indicates but a slight Compression of the Brain; a Vertigo, accompany'd with Dimness of Sight, denotes an Increase of the Disorder, which, the compressing Cause being remov'd, ceases. Hence, in acute Diseases, when the larger Vessels, being distended by the great Quantity and impetuous Motion of the Blood, press upon the Brain, there arises such a dark Vertigo, which is remov'd by an Hemorrhage

at the Nostrils, as *Hippocrates* informs us in his *Coacæ Prænotiones*, "a dim or dark Vertigo in the Beginning is resolv'd by "a Flux of Blood from the Nostrils," that he might distinguish it from a like Vertigo, which does not molest the Patient so much in the Beginning, but comes on more slowly from Bile corrupted by the Distemper, or from a Collection of other Sordes about the Præcordia.

As to a Ringing in the Ears, a Vertigo, attended with a Dimness of Sight, is almost always accompany'd with an uneasy ringing Noise in the Ears, as if the Patient heard a thousand small Bells. But when, without the Concurrence of an external Cause, such a Noise is heard, it is call'd a Ringing of the Ears. This sometimes arises from a very slight Disorder in the Organ of Hearing, in which Case 'tis generally pretty soon remov'd by thrusting the little Finger into the auditory Passage, and twisting it about, or by compressing the Tragus; nor does this Species of the Disorder pretend any future Ill. But when a Ringing of the Ears proceeds from a Disorder of the Brain, it is not so easily remov'd, but often proves troublesome for Years together, and is the ungrateful Harbinger of an approaching Apoplexy, or Epilepsy, as *Hippocrates* has observ'd in his *Coacæ Prænotiones*. This Symptom proceeds from the same Cause which produces a Vertigo, and almost always succeeds violent Wounds of the Head.

As to Deliriums, 'tis known from Physiological Observations, that the Brain is that important Organ, on the Soundness of which the Perception of Ideas, their various Combinations, the several subsequent Judgments form'd, and the Affections of the Mind, depend. But when the Perception of Ideas does not correspond to their external productive Causes, but depends on the Change induc'd on the State of the Brain itself, a Delirium is said to be present. When the Brain is compress'd, in consequence of the Figure of the Cranium being chang'd, all the Functions of the Body, which depend upon a free and uninterrupted Action of the Brain, may be disturb'd; for 'tis observ'd, that most of those who have the Misfortune to be born Idiots, have something amiss and uncommon in the Shape and Figure of their Heads; and *Hippocrates*, when recounting the fatal Symptoms which follow any Wound of the Cranium, if due Care is not taken to treat it properly, at last adds, that the Patients, who become delirious, die: And he elsewhere pronounces a Delirium following Wounds in the Head to be a bad Sign; for, says he, in *Aphor. 14. of Sect. 7.* a Stupor or Delirium, succeeding Wounds of the Head, are bad and inauspicious Symptoms; and in *Aphor. 24. of the same Section*, he tells us, that a Wound of the Bone, penetrating into its Cavity, produces a Delirium.

As to a Vomiting of Bile, this surprising Symptom in Wounds of the Head always denotes, that the Brain is wounded, or disorder'd either by Compression or Concussion; for 'tis obvious, from daily and unquestionable Observations, that remarkable Changes in the Brain of the soundest and most healthy Men not only excite such bilious Vomitings, but also often surprisingly change the Bile itself almost in a Moment of Time.

A Man not accusom'd to the Tossings of a Ship, after a Vertigo, and intolerable Uneasiness, vomits an eruginous Bile. The same happens to the most healthy Man, when quickly turn'd round for some Time. In this Case also a Vertigo precedes, which shews that the Brain is affected. On the contrary, a corrupted Bile, lodged about the Præcordia, surprisingly disturbs all the Actions of the Brain, by producing Vertigos, Deliriums, and Convulsions; and when this fœtid Bile is dislodg'd, and thrown off, the above-mention'd Symptoms forthwith cease. Hence 'tis obvious, that there is a surprising Communication between the Head and the Præcordia, since they act so effectually upon each other. Nor can this Phenomenon be easily accounted for from the known Structure of the Parts, tho' the Truth of the Fact is evinc'd by the most unexceptionable Experiments. Thus *Scultetus*, in his *Armamentar. Chirurg.* observes, that almost all those who receive Wounds on their Heads, complain of a bitter Taste in their Mouths.

This has, therefore, been always accounted a bad Sign in Wounds of the Head; accordingly *Hippocrates*, in his *Coacæ Prænotiones*, tells us, "That he whose Brain is wounded is, "for the most part, seiz'd with a Fever, a Vomiting of Bile, "and an Apoplexy; and that his Condition is, in consequence "of these Symptoms, very desperate." In the fifteenth *Aphorism* of his sixth *Section*, he informs us, "That Wounds "of the Brain must necessarily be succeeded by a Fever, and a "Vomiting of Bile:" And, in his *Coacæ Prænotiones*, he tells us, "That Vomitings of Bile are bad Symptoms, when "succeeding any Wound, especially those of the Head." When the Brain begins to be compress'd, or otherwise affected by internal Causes, the Vomiting of Bile, especially of the eruginous kind, is enumerated among the bad Signs; for *Hippocrates*, in *Proorrh. Lib. 1.* tells us, "That, in Pains of the Head, "eruginous Vomitings, accompany'd with Deafness and "Watching, soon render the Patients highly delirious." The Truth of this Assertion is, in his *Epidemics*, confirm'd by the Example of *Philista*, who was seiz'd with all these Symptoms in the

the Order in which they are enumerated, and died on the fifth Day of the Disorder.

'Tis therefore obvious, that when the Brain is disorder'd, either by an external or an internal Cause, a Vomiting of Bile frequently ensues, and is an unfavourable Prognostic. But 'tis to be observed, that since slight Disorders of the Brain are sometimes follow'd by a Vomiting of Bile, we are not, therefore, to prognosticate the worst from this Symptom, unless other bad Symptoms appear in Conjunction with it; for it often happens, that Persons falling from an Eminence, and dashing their Heads against a hard Body, vomit from the sole Concussion of the Brain, tho' afterwards no bad Symptom whatever appears; for, in that Case already mention'd from *Ruyfch's Observat. Anatom. Chirurg.* when the Surgeon understood, that the Woman, who had fallen from the Chariot upon the Ground, harden'd by the Frost, had vomited several times, he suspected the worst Consequences; and would have made a crucial Incision in the confused Part of her Forehead, had not *Ruyfch* prevented him, and speedily carried off the Disorder by applying Fomentations to the Part affected.

As to Head-achs, it is not as yet confirm'd by Experiments, whether, when the Head aches, the Substance of the Brain or Cerebellum is pain'd. We know, for certain, that the cortical Substance of the Brain, when sprouting forth in Funguses, may safely be wounded, and even cut off. 'Tis, in like manner, certain, that when the medullary Substance of the Brain is wounded, Convulsions are forthwith produced. But, upon this Emergence, all the Functions of the Brain are so disturb'd, that it cannot, at that Time, be determin'd whether the Brain is affected with Pain or not. 'Tis, however, certain, that the external Integuments of the Cranium, especially the Pericranium, and the tendinous Expansion lying upon it, as also the internal Periosteum, or Dura Mater, are affected with Pain when they are wounded. For this Reason the most celebrated Physicians have affirm'd, that a Head-ach was a Disorder proper to the Cranium and its Integuments; whereas a Delirium was an Affection of the Brain: Since, then, a Depression of the Cranium, or an Intropulsion of it, in consequence of a Fracture, cannot happen without a Wound, or at least a Distraction of the Integuments and Dura Mater, it is obvious, that Head-achs must be produced by such a Disorder; unless, at the same time, the Brain is so compress'd by the Depression of the Bone, that all the Senses are entirely abolish'd. For this very Reason, in Cases of this Kind, Head-achs denote something of a promising Nature, which is, that the Functions of the Brain are not entirely destroy'd.

As for Convulsions, they always teach us, that the Brain is so compress'd or wounded, that the equable Influx of the Spirits into those Nerves, which are subservient to muscular Motion, is disturb'd.

As to Palseys, they are produced when the Brain is so wounded, that the Influx of the Spirits into those Nerves, which move the Muscles, is entirely hinder'd. This Disorder receives various Names, according as it affects all the Muscles, or those of one Side, or only some particular Muscles; for, according to the various Parts of the Brain wounded or compress'd, the Effect will be proportionably different. A Palsey, following a Wound of the Head, is always an unfavourable Prognostic, because it denotes, that the medullary Substance of the Brain is compress'd or wounded.

As to an involuntary Discharge of the Urine and Fæces, proceeding from a Relaxation of the Sphincter Muscles of the Anus and Bladder, it is, in all Diseases, and especially in Wounds of the Head, enumerated among the worst Symptoms; for the Nerves, subservient to these Sphincter Muscles, draw their Origins from the last Nerves of the spinal Marrow, which pass thro' the Foramina of the Os Sacrum; from which it is obvious, that the Origin of the spinal Marrow must be by this time injur'd in the Brain. But we must distinguish between this Relaxation of the Anus and Bladder, by which the Urine and Fæces are gradually and continually discharged, and when, in Apoplectic Cases, as also in acute inflammatory Disorders of the Head, the Urine, previously collected in the Bladder in a large Quantity, is discharged perhaps every six Hours, without the Knowledge of the Patient; but, at the same time, without a Relaxation of the Sphincter of the Bladder, because the Urine remains so long shut up in it before it is discharged.

For it is a far more terrible Disorder, when, in consequence of a Relaxation of the Sphincter of the Bladder, the Urine is insensibly discharged, than when, being collected in a large Quantity, it is evacuated without the Patient's perceiving it. This last Misfortune happens frequently to Children in a tolerable State of Health, and sometimes to grown Persons, without any bad Consequences following from it. Hence it is obvious, that a far greater Disorder is indicated when the Urine is insensibly discharged, in consequence of a Relaxation of the Sphincter of the Bladder, than when a considerable Quantity of it is collected in the Bladder, and discharged without the Patient's being conscious of it: But *Hippocrates*, in his *Caas*
VOL. II.

Prænotions, after having recounted the bad Properties of Urine, as to Colour, Thickness, and other Qualities, absolutely condemns every Kind of Urine which is involuntarily discharged; *λαβειναι ενυμνησιν*.

As to Apoplexies, Fevers; and Death, the Phenomena already enumerated denote, that a Depression of the Cranium may, by a gentle Compression, disturb some Actions of the Brain; but when the Compression is so far augmented, that all the internal and external Senses, together with the spontaneous Motions, are destroy'd, then there is an Appearance of a profound Sleep, which is call'd an Apoplexy, and which is almost always accompanied with a strong and quick Pulse; whilst the Action of the Cerebellum not only remains, but is increased, because, lying safely defended under the Dura Mater, it is less easily compress'd. At last, when the Cerebellum is also compress'd, or its Structure destroy'd by an Augmentation of Motion, Death ensues; since, when the Brain is compress'd, the whole Force of the Blood, which ought to circulate thro' it, acts almost entirely on the Cerebellum.

If the Brain itself is any way injur'd, the same Symptoms and Effects will be produced, as by its Compression by the Bone, in consequence of its being affected by an Inflammation, Suppuration, Gangrene, Fungus, or Hæmorrhage.

The principal Malignity of Wounds of the Head depends upon this, that the adjacent Brain is easily affected: When, therefore, the Wound is so great as to reach the Brain itself, 'tis obvious, that the worst and most terrible Symptoms are thence to be dreaded; for the Whole of the human Functions depend upon the Soundness of this soft and pulpy Organ. Now 'tis obvious, from anatomical and physiological Observations, that the whole Brain consists of Vessels, in which, when compress'd or hurt, Obstructions, Inflammations, and all their terrible Consequences, may happen; as also all those Disorders which are excited by the Pressure of the extravasated Juices, or their corroding Quality, when become corrupted. But surgical Observations teach us, that all these Consequences may follow Wounds of the Brain.

A certain Man was wounded in the posterior Part of his Head with a Hanger, which also injur'd the Cranium; and as, from the Beginning, he was under the Care of an unskillful Surgeon, who, rudely examining the Wound with the Probe, thrust a third Part of it thro' the Fissure of the Cranium into the Substance of the Brain; when more skillful Surgeons were call'd, they would not make use of the Trepan, for fear of rendering this Operation, which proves salutary to many, infamous. After the Appearance of various Symptoms, the miserable Patient died on the twenty-third Day; and, upon opening the Cranium, a large Abscess was found in the Left Side of the Brain, included in its proper Membrane: When this was laid open, a large Quantity of fetid Pus was discharg'd. *Scultet. Armamentar. Chirurg. Paré*, in the twenty-third Chapter of his tenth Book, tells us, that he had often observed a large Quantity of Pus, and even a Corruption of the Substance of the Brain, whilst examining the Bodies of those who had died of Wounds of the Head, in order to give in a Report to the Judges. He also adds another Case, which informs us, that the Patient remain'd alive, after a Suppuration happen'd within the Cavity of the Cranium. A Boy dash'd his Head against a Stone Floor, with such Violence, that he was forthwith deprived of all his Senses; upon which a Fever, Delirium, and other terrible Symptoms, succeeded. On the seventh Day a profuse Sweat broke out, the Patient was seiz'd with a Sneezing, and a large Quantity of Pus was discharged from his Mouth and Nostrils: Thus all the Symptoms were relieved, and the Patient cured. In the *Hist. de l'Acad. des Sciences*, for the Year 1700. we have a memorable Case, where, after a Fall from an Eminence, by which the Cranium was wounded, a large Quantity of Pus was discharg'd thro' a small Hole in the Sagittal Suture; which Evacuation being sometimes suppress'd for some Days, the Patient was seiz'd with Convulsions frequently each Day. But when the Pus began again to be discharg'd, the Convulsions ceased: On the fiftieth Day, however, the Patient died. In the Cranium there was found a large Fissure, above six Inches long, which had already grown together. In the Dura Mater no Disorder appear'd, but the whole Left Lobe of the Brain was suppurated; whilst its Right Lobe, and the Cerebellum, remain'd entirely sound.

Many Observations of this Nature occur in practical Authors; but these are sufficient to demonstrate, that a genuine Suppuration may happen in the Substance of the Brain. And, at the same time, it appears, that tho' a Suppuration in this Part is always very dangerous, yet Death is not always the Consequence of it.

But when, instead of a benign and kindly Suppuration, which separates every Thing in which the Circulation can no longer be perform'd, a Gangrene seizes the Brain itself, 'tis obvious, that all Hopes of the Patient's Recovery are cut off. But that such a Disorder sometimes succeeds Wounds of the Brain,

Brain, is sufficiently vouch'd by the Observations of good Authors. Thus *Scultetus*, in his *Armamentar. Chirurg.* gives us an Account of a Soldier, who, after a violent Contusion of the Head, without any Wound, was taken into the Hospital: But, nine Weeks after, when he felt no more Pain, nor any Disorder, and was thinking of returning to his native Country, he died suddenly in the Night-time in his Bed. No Wound was discover'd in his Cranium; but about a Finger's Breadth of the Substance of the Brain, lying under the Part where the Blow was received, appear'd corrupted, like a rotten Apple; together with a violent Putrefaction, which reach'd almost to the anterior Ventricles. The Pia Mater was also slightly corrupted, but all the other Parts appear'd sound. *Hildanus*, in *Observ. Chirurg. Centur. 2. Observat. 25.* gives us an Account of a Man, who, in the Month of *October*, died two Days after having received some terrible Wounds of the Head, which penetrated into the Substance of the Brain. Upon removing the Dressings, after his Death, his Wounds diffus'd so offensive a Smell, that none almost durst venture to come near his Corps; so violent was the Putrefaction produced in a healthy Man, in a sufficiently cold Season.

Hippocrates observed, that the Brain might be corrupted; and used the Words *σακελιζεν* to denote this Corruption: Thus, in his *Coacæ Prænotiones*, he tells us, that "when the Brain is corrupted, some die in three, and others in seven Days; and that, if they pass these Days, they recover; but that those die, in whom, after an Incision made, the Bone appears disjoint'd." And, in the fiftieth Aphorism of his seventh Section, he tells us, "That they whose Brain is corrupted (*σακελιζεν*) die in three Days; but that they recover, if they survive that Time." But, in these Passages, he insinuates, that the Cure is still possible, tho' the Brain is corrupted. It will hereafter appear, that the Substance of the Brain, rising in fungous Protuberances, may be cut off or corroded, whilst not only Life, but all the Functions of the Brain, are preserved entire afterwards.

Under the Article *VULNUS* it is shewn, that when the Skin is cut, the subjacent Part, being now no longer restrain'd by the equable Pressure of the Skin, rises up, and degenerates into what we call fungous Flesh in Wounds. The like Misfortune happens in Wounds of the Head, when the Cranium and Dura Mater are cut thro'; for, naturally, the Cavity of the Cranium is very full, as has already been observed: When, therefore, in consequence of the Wound of the Cranium and Dura Mater, their Contents are no longer restrain'd, they begin to protuberate; and because the Arteries, before they enter the Substance of the Brain, lose their thick elastic Coats, they are therefore less able to resist the Fluids propel'd to them from the Heart, to which they are pretty near: Hence they are greatly dilated, and form surprising Tumors; and because these Tumors rise much sooner than Expectation, and expand themselves very wide, after they have got without the external Lips of the Wound, whereas they are more compress'd in the Wound itself; they are therefore call'd Funguses of the Brain, because they resemble that Substance both in their Shape, and sudden Production. But the largest of these Fungi are produced when a violent Fever increases the Force and Velocity of the Liquids, convey'd to the Vessels of the Brain, which are so easily dilated. But, so long as the Dura Mater is still entire, Funguses of this Kind are rarely produced; for this Membrane, being considerably strong, restrains the subjacent Substance of the Brain: But when the Pia Mater is at the same time wounded, these Funguses arise still more; for, in Carcasses, we observe, that, when a gentle Wound is made in the Pia Mater, the cortical Substance of the Brain forthwith rises thro' the Wound.

Many surgical Observations prove, that, when the Cranium and Dura Mater are cut, the Substance of the Brain rises thro' the Wound in surprising Tumors: But one or two Instances of this Kind will be sufficient for our Purpose.

Paré, in the twenty-third Chapter of his tenth Book, gives us an Account of a Youth of Distinction, who, by a Blow of a Stone, had his Right Os Bregmatis broken. Immediately the Bulk of half a Nut of the Substance of the Brain was thrust forth; and when a certain young Physician present denied, that it was a Part of the Brain, affirming it only to be Fat, *Paré* proved, by Experiment, that the Substance of the Brain had come out at the Wound. This Case proves, that when the Cranium, and Membranes surrounding and encompassing the Brain, are cut, the soft Substance of the Brain may very soon protuberate, and appear thro' the Wound.

Hildanus, in *Observat. Chirurg. Centur. 4. Observ. 3.* gives us an Account of a Youth of fourteen Years of Age, who, amidst his Play, had the Left Part of his Os Frontis struck with a wooden Ball. He immediately fell down, vomited Bile, and afterwards continued to vomit up almost every thing he eat or drank. Two Months after, whilst the Patient still remain'd in a bad State, his Cranium being perforated, the Pus burst thro' the Perforation with considerable Force. Afterwards the Substance of the Brain began to rise, nor could it be restrain'd;

for which Reason it was cut off, by means of a Thread tied about it. Immediately a like Substance, resembling a Fungus, broke out to a Height equal to three Fingers Breadth, which was also removed by the same Method. This Method was so frequently repeated, that all the Funguses cut off were as large as one's Fist; and yet the Patient was afterwards cured.

In the *Miscell. Curios. Decur. 2. Anno 9. Observ. 174.* we have an Account of a Boy of seven Years of Age, who, by a Fall from a Horse, had his Right Os Bregmatis violently wounded. On the fifth Day a Fungus, as thick as one's Finger, and an Inch long, grew forth from the wounded Part of the Cranium. The Boy's Parents would not admit of the Wound's being accurately examin'd, and the depress'd Part of the Cranium elevated; but constantly affirm'd, that they would rather have their Son die by mild and gentle Measures, than be subjected to the Agonies of an Operation, the Event of which was dubious and uncertain. For this Reason, both Physician and Surgeon endeavour'd to remove the Fungus, almost by the Use of drying Medicines alone: However, it remain'd without any considerable Change for three whole Months; but the formidable Symptoms, which appear'd at the Beginning, were much mitigated, and almost entirely removed. All the vital, animal, and natural Actions were restor'd to such a Degree, that the Habit of the Patient's Body became fuller, and he could divert himself by his usual Recreations. About the Beginning of the fourth Month the Fungus increased very much, but was removed by sprinkling it with the Powder of Euphorbium, and burnt Alum. However, in the Space of twenty-four Hours another Fungus, as large as a Hen's Egg, appear'd, with an Increase and Exacerbation of all the Symptoms. In this last Fungus there was a strong Pulsation of the Arteries, and, when handled roughly, it discharged a large Quantity of Blood. Attempts to destroy the luxuriant Fungus by Corrosives were vain and fruitless; for which Reason the Surgeon tied a Thread about the narrow Part of its Neck, upon which there arose so violent a Pulsation of the Arteries in the Fungus, that the Whole of it seem'd to have a subfultory Motion: However, by drawing the Thread tighter, the greater Part of the Fungus fell off with an intolerable Stench, together with the Thread. The remaining Part of the Fungus appear'd blackish, sordid, and corrupted to such a Degree, that the very Sight of it was loathsome. Convulsions, Tremors, and an Hemiplegia, succeeded. Some Days after, all the corrupted Parts of the remaining Fungus dropt off: But a fresh Fungus, of a cineritious Colour, as large as a Walnut, without Pain, and with a manifest Pulsation of the Arteries dispersed thro' it, arose from the Wound; but in a few Days spontaneously dropt off, and left a large Hiatus, which penetrated into the very Substance of the Brain. Two Days after, the Whole of this Cavity was, in the Space of one Night, fill'd with a fresh Fungus; and a few Days after he died, in the End of the fourth Month after he received the Wound, having been violently rack'd with Convulsions in the posterior Part of his Body for two Days before his Death; but all his Senses, his Speech, and the Use of his Reason, remain'd till the very End of his Life.

This surprising Case teaches us, that such Funguses consist in a Dilatation of the vascular Substance of the Brain itself; and that they soon sprout out afresh, when they are removed or taken away. Upon opening the Patient's Cranium the cortical Substance of the Brain was found quite consum'd in the wounded Part, and the Whole of the Brain overflow'd with a large Quantity of Pus.

As to the Effects of a Hemorrhage of the Brain, three Kinds of Blood-vessels are generally consider'd in the Brain: First, those Arteries which, being dispersed thro' the Dura Mater, are pretty strong and vigorous; and, being defended by the Duplication of this Membrane, are pretty safely situated. But that very considerable Arteries are lodged here, we are sufficiently convinced, by the Furrows they impress upon the Cranium. Secondly, the Blood-vessels dispersed thro' the Pia Mater, the Whole of which is, by Anatomical Injections, demonstrated to be of a vascular Structure. Now these Arteries, losing their thick Coats before they enter the Pia Mater, must be very tender, and of course easily susceptible of Injuries. But as soon as these Blood-vessels have reach'd from the Pia Mater to the contiguous cortical Substance of the Brain, they no longer contain red Blood, but a far finer Fluid; for, naturally, no red Blood ever appears in the cortical Substance of the Brain. Thirdly, thro' the medullary Substance of the Brain there are Blood-vessels dispos'd, which are sufficiently conspicuous to the Eye, which, by their benign Warmth, nourish the tender medullary Stamina; sufficiently large Blood-vessels of the same kind also surround the Medulla Oblongata. In the hollow Ventricles of the Brain are lodg'd those surprising Processes of the Pia Mater call'd the Plexus Choroidei, which adhere to no Part of the Ventricles of the Brain, but fluctuate there freely, and are entirely vascular, as is obvious not only from anatomical Injections, but also, without these, from Observations made with

with the naked Eye. In all these Parts, therefore, Wounds inflicted may injure these Vessels; and Blood, consequently, may be discharg'd; and tho' the wounding Instrument does not penetrate very deep, yet, by a strong and powerful Concussion, the tender Vessels, dispers'd thro' the Pia Mater and Ventricles of the Brain, may be broken, and the discharg'd Blood may, by compressing the Brain, either disturb, or entirely destroy, all its Actions, as is plain from numberless Instances.

Whatever is the Cause, then, which injures the Brain, or compresses it, or destroys its Structure and Compages, by Inflammation, Suppuration, or Putrefaction, all those Symptoms, already recounted, may be produc'd by it, from the slightest Vertigo, to the most fatal Apoplexy.

A Depression of the Cranium is distinguish'd by Feeling, or by the Sight, especially when the Integuments are taken away.

In applying the first Dressings to Wounds of the Head, Circumstances are, with all possible Care, to be inquir'd into, since the Symptoms, succeeding Wounds of the Head, are frequently the same, tho' different Parts of it are wounded; for, whilst the Cranium, being depress'd, or forcibly driven inwards by a Fracture, compresses the Brain, all the Disorders of the Brain may, by that means, be produc'd: And, on the contrary, when the Cranium is unhurt, but the Vessels of the Pia Mater broken, the Blood discharg'd compresses the Brain, from which all the same Symptoms may ensue: But when, by the Senses, it can be discover'd, whether the Cranium is wounded, or not, this is the first thing to be set about; and the Method of doing it is this: The Hairs are first to be shav'd off; then the Part affected is gently to be felt every-where with the Fingers, that it may be discover'd, whether the convex Figure of the Cranium is chang'd, or not. But we have before observ'd, that, in this Examination, great Caution is requir'd, and that the Touch often proves fallacious; but if the Depression of the Cranium is so conspicuous as to be discover'd by the Eye, no Doubt can remain: And when, on account of the Violence of the Symptoms, the Integuments are rais'd, and the Bone laid bare, 'tis easily discover'd, whether there really is such a Disorder, or not.

A Removal of whatever pricks the Brain; a Restitution of whatever presses it, to its natural State; and a Retention of it in this State, are sufficient, in the last-mention'd Cases, for the Cure.

The general Indication of Cure is comprehended in these three Particulars; for it sometimes happens, that a sharp and pointed Splinter of the Cranium, when fractur'd, and driven inwards, wounds the subjacent Brain; and sometimes it happens, especially when the Head is dash'd against any round Object, that an orbicular Portion of the Cranium is thrust inwards, which compresses, but neither pierces nor tears, the Substance of the Brain. It has sometimes also happen'd, that, whilst the external Table of the Cranium remain'd entire, the internal one has been broken into Splinters, which, by penetrating and lacerating the subjacent Brain, have frequently brought on Death. *Paré*, in the eighth Chapter of his tenth Book, gives us a Case of this kind: A Gentleman, says he, of Distinction, whose Head was cover'd with a Helmet, happen'd, by a Musket-bullet, to have his Iron Defence depress'd: No Wound, however, appear'd in the external Integuments, nor could any Depression of the Cranium be discover'd. On the sixth Day the Patient dy'd apoplectic. Upon laying open the Cranium, it was found, that, tho' its external Table was entire, yet its internal one had been broke into Splinters, which had penetrated into the Substance of the Brain. He also affirms, that he exhibited another Case of the like Nature, in the Presence of some very celebrated Physicians. The Difficulty of discovering a Disorder so latent, and remote from the Senses, may be easily conceived. But, when this is known to be the Case, the pointed Splinter is, with the greatest Caution, to be extract'd, and the highest Care taken, lest, by twisting it about, or handling it roughly, the Brain should be more severely wounded. When that Part of the Cranium which is depress'd, or driven inwards, is restor'd to its natural Situation, 'tis highly necessary to take proper Measures to retain it in this Situation, and prevent its falling inwards again. When the compressing Cause is remov'd, the equable Circulation of the Fluids, thro' the now pervious and free Parts, will restore their natural Use: Art can only, in this Case, restore those Parts to their natural Situation, which were put out of it.

The Cranium in Children, when depress'd, may sometimes be restor'd by means of an adhesive Plaister, as being soft and yielding; but, in Adults, where it is more firm, an Elevator is necessary to raise it. In Cases, however, where the depress'd Bone is loose, and yields to the Terebra, a Perforation must be made in the Skull, near the Fracture, thro' which a Lever must be introduc'd, in order to elevate

the depress'd Bone. Sneezing, and holding the Breath, have been recommended for the same Purpose.

The Cranium, says *Heister*, especially of young People and Children, is sometimes, like a Vessel of Tin or Copper, by an external Force, such as a Blow or Fall, depress'd, without any manifest Fracture; or, at least, so fractur'd, that, by reason of its Flexility, it coheres firmly with most of the contiguous Parts of the Cranium: But, in Adults, the Cranium, in consequence of its Rigidity, can scarcely, if at all, be depress'd, without having its Parts disjoin'd and separated. This kind of Wound in the Cranium is, by Physicians, call'd Fractures, by which the Parts of the Brain are, at the same time, compress'd, and its Actions and Offices disturb'd.

Sharp says he has met with one Instance of a Depressure without a Fracture himself, in a Girl of seven Years of Age. When she first receiv'd the Injury, she had the Complaints of an oppress'd Brain, but they soon went off. The Blow form'd a large Tumor on the Parietal Bone, for which she was put under his Care some Days after the Accident. He open'd immediately into it, by cutting away a large circular Piece of the Scalp, and took out a great Quantity of grumous Blood, lying underneath the Periosteum; he then dress'd the Depression with dry Lint, and, finding no Complaint come on, continu'd the same Method, till in about six Weeks she was perfectly cur'd.

Hence, in my Opinion, says *Heister*, 'tis obvious, that no less fatal Symptoms are produc'd by Depressions of the Cranium, than by those other Wounds of it we have already mention'd. This Species of Wounds are, however, more or less dangerous, according as the Depression is greater or less. They are sometimes incurable, because almost always some internal Blood-vessels are broken, and pour forth their Contents on the Brain, from which the most terrible Consequences must necessarily ensue.

That the Cranium is thus fractur'd or depress'd, may be known either, first, by Inspection, or, secondly, by the Touch; or, thirdly, by the Instrument with which the Wound is made, and, fourthly, from the succeeding Symptoms. Fractures and Depressions of the Cranium are, for the most part, much more easily discover'd than small Fissures: But that any Wound of the Cranium is not only dangerous, but may also prove mortal, may be easily infer'd from what has been said.

In the Cure of this Disorder we are, above all things, to remove the Substance which compresses the Brain, or to elevate, and restore to its former Situation, the depress'd Bone, when it coheres with the rest of the Bones of the Cranium; and if any Splinters are detach'd from the Bone, and prick the Brain like so many Needles, these are to be remov'd with all possible Expedition.

But if slight Depressions are made in the Cranium of Children, without troublesome Symptoms ensuing, it seems better to abstain from the more violent Methods of elevating the depress'd Part, and to treat the Part affected with a View to attenuate the contus'd Matter, either with the resolvent Fomentations, or with warm Spirit of Wine, or with camphorated Spirit of Wine; or, in still gentler Depressions, with some digestive Plaister, such as the *Emplastrum de Meliloto*, or the *Emplastrum de Betonica*; for, by these Remedies, gentle Depressions in the Cranium of Children are often happily and thoroughly cur'd.

But when, in Children, the Symptoms are of a very formidable Nature, the depressed Part may be elevated in the following Manner: A Piece of Leather, cover'd with some highly adhesive Plaister, and strong Cords affix'd to it, is to be apply'd warm to the Part affected, after the Hairs are shav'd off; and, after it is suffer'd to stay on for some Time, that it may adhere the more firmly, the Cords are to be strongly pull'd upwards, see *Tab. 28. Fig. 6.* and thus the Plaister and depressed Part of the Cranium are both elevated at the same time. If the Operation does not succeed at the first Time, it is to be repeated till the Intention of the Surgeon is answer'd; for, by this means, depress'd Parts of the Cranium are often happily restor'd. According to *Hildanus, Cent. 2. Obs. 5.* a Plaister for this Intention may very properly be prepar'd of Pitch, Resin, Colophony, and Gum Elemi: Sometimes also a large Cupping-glass, apply'd to the Head, is of singular Service for elevating the depress'd Part of the Cranium, especially when the Mouth and Nostrils are kept shut, that the retain'd Breath may buoy up the Brain, and, by that means, elevate the depress'd Part of the Cranium. But, if the Intention can neither be answer'd by the Plaister nor the Cupping-glass, 'tis necessary, after having remov'd the Integuments and Membrane of the Cranium, gently to enter a Terebra, like that represented in *Tab. 28. Fig. 7. Let. B.* into the Cranium, and, drawing it back, by that means to elevate the depress'd Part.

But when, in Adults, or even in Children, the Cranium is so depress'd, that the Bones are quite broken asunder, the depress'd Parts are forthwith to be restor'd to their former Situation. Some maintain, that Sternutatories are very properly exhibited with an Intention to distend the Brain, and, by that means, to elevate

elevate the depress'd Parts of the Cranium: But I do not think it advisable to recommend this kind of Medicine, since it may very possibly produce fatal and unhappy Effects. We must, therefore, have recourse to the Elevators represented *Tab. 28. Fig. 7. Let. C. and Fig. 8.* provided there is a Fissure, or Chink, at which the Instrument may be introduc'd. But where no Chink or Fissure can be perceiv'd, the Terebra, represented by *Let. B. Fig. 7.* or some such other, is forthwith to be us'd, and, by its Assistance, the Part depress'd to be elevated. But there ought always to be a previous Incision made with a Knife to the Bone, in the Part where the Wound appears most soft and tumid, that the Integuments may be laid aside; and, by the Assistance of a sharp Instrument, like that represented by *Fig. 2.* or that by *Let. A. in Fig. 7. in Tab. 28.* a small Perforation is to be made, that the Terebra may enter the Bone with the greater Ease and Facility.

But, since such is the Frame and Make of the Elevators represented by *Fig. 7. and 8. Tab. 28.* that they cannot be safely us'd, without the Depression of the contiguous Parts of the Cranium, when they are either fractur'd or weak; the antient Physicians, with good Reason, contriv'd a certain Species of Elevator, which they call'd a *Tripes*, represented *Tab. 28. Fig. 12.* which ought to be almost as large again as 'tis there exhibited. Its Feet, A. A. A. may be brought nearer, or drawn farther from each other, as the Nature of the Operation requires; and the Method of applying it is this: The Machine is so apply'd, as that its Feet may rest upon the sound Parts of the Cranium. Then, after making a Perforation with the Instrument represented by *Fig. 2.* the Terebra, B. C. by continually turning about its Handle, D. D. is gradually enter'd into the depress'd Part. After this the Terebra is, by means of the Screw, E. E. to be elevated along with the depress'd Part of the Cranium, till it is in its natural Situation; as may be seen more fully in *Tab. 28. Fig. 13.* But, if any Fissure or Aperture is obvious between the Parts of the shatter'd Bone, it will be more proper to remove the Point of the Terebra, and fix the Elevator, G. by means of the Screw, H. at the *Let. F. Fig. 12.* and, by its means, raise the depress'd Part of the Cranium in the manner now directed.

We find another very convenient Elevator of this kind, but more simple in its Structure, describ'd by *Hildanus, in Cent. 2. Obs. 4.* We have given a Representation of it in *Tab. 28. Fig. 14.* In this Machine there must also be a Terebra, A. and a Hook, represented by *Fig. 15.* either of which ought first to be introduc'd into the depress'd Part, and held by the Lever, B. C. pass'd thro' them. Then the Plate, D. is to be apply'd to the sound Part of the Cranium, with Compresses under it, for fear of exciting Pain; and, elevating the Extremity of the Lever, B. the depress'd Part of the Cranium is, by that means, to be gently rais'd. Near the other Extremity of the Lever there is a Joint, C. for inclining the Plate, D. as the Case requires, or the Convexity of the Head calls for it; and this Plate may be either rais'd or depress'd at Pleasure, by means of the Screw, E. But it will be proper to use a Lever somewhat longer than that we have represented; since, by that means, the depress'd Part may be both more forcibly, and more commodiously, elevated.

But, if the depress'd Part of the Cranium is entirely separated from the rest of the Bones, and sunk so far, that it can neither be elevated by these means, nor extract'd, it seems necessary to perforate the adjacent sound Part of the Cranium with the Trepan, and cut the Piece of Bone, interpos'd betwixt the perforated Part and the Fracture, with a slender Saw, represented by *Fig. 9. Tab. 28.* as far as it safely may; and then to cut it quite out with a proper Chisel, represented *Fig. 10.* and a Leaden Mallet, represented *Fig. 11.* for, by making a Perforation of this kind, Elevators may be more easily apply'd, and, consequently, the depress'd Parts more commodiously elevated; but it rarely happens, that this laborious and tedious Operation is necessary.

When the depress'd Parts are restor'd, we must take all possible Care, that they be not again depress'd; for this Reason the Patient's Head is to be laid on the sound Part, with the Wound uppermost. Then the Part affected is to be fortify'd with a Plate of Brass, Copper, or Iron; and the Wound is, in the mean time, to be treated according to the Directions above laid down. Or a Ring may be made of Paper, or twisted Linen, somewhat larger than the Part affected, that the Whole of it may be contain'd within its Circumference; and this, being fixed by proper Bandage, will prevent the Pillow, or the Bandage destin'd to keep on the Dressings, from pressing too forcibly on the Part.

As to Sneezing, and Retention of the Breath, above recommended, it is to be observ'd, that, in Sneezing, a mild and gentle Titillation is perceiv'd about the Nostrils, and sometimes about the Præcordia. When any one or both of these Sensations are perceiv'd, all the other Actions of the Body are suspended, and the Patient is oblig'd to wait for what is to happen. The next Moment all the Muscles, subservient to the Purposes of Expiration, are convuls'd in an irresistible manner, and the Lungs, suddenly contracting, expel the Air contain'd in

them with a kind of whizzing Noise. At the very Instant, therefore, in which this strong Expiration is made, the Blood cannot possibly pass thro' the Lungs. Hence the venous Blood, returning from the Head, is hindered from discharging itself freely into the Right Ventricle of the Heart; by which means all the Vessels of the Brain are not only distended, but also the Impetus of the arterial Blood is, at the same time, augmented, by the Violence of the Concussion: Thus, by the Concurrence of these two Causes, the whole Mass of the Brain is sufficiently distended. That this is a genuine Representation of the Affair, is obvious, because, by a repeated Sneezing, all the Senses, and muscular Motion in general, begin to fail, the Face swells, Tears burst from the Eyes, and the Nostrils drop; and, if Sneezing is very often repeated, all the Actions of the Brain are often surprisingly disturb'd.

But, whilst the Breath is retain'd, the Circulation of the Blood is, in like manner, obstructed thro' the Lungs, which are compress'd by the retain'd Air dilated by the Heat. Hence the jugular Veins cannot discharge their Contents, by which means all the same Effects will be produc'd as by Sneezing; only with this Difference, that, during the Interval between two Sneezings, the Blood has a free Passage thro' the Lungs; but, so long as the Breath is retain'd, the Compression of the Lungs is every Moment augmented, since the Air contain'd in them is, by its Continuance, gradually more heated, and, consequently, more dilated. When, therefore, in young Patients, the Bones are as yet flexible, or when, in Adults, they are so broken as to be mov'd by a gentle and small Force, the Brain, render'd turgid by the retain'd Blood, may elevate the depress'd Part of the Cranium, or, at least, contribute to its Elevation, in Conjunction with other Measures.

How considerable the Force is with which the distended Brain presses outwards the depress'd Cranium, we may learn from a very memorable Case, related by Mr. Jamieson, Surgeon in *Kelso*, in the second Volume of the *Medical Essays*. "Some Slates," says he, "falling from the Roof of a House four Stories high, upon the Head of a Girl about thirteen Years of Age, broke and shatter'd her Cranium, at the Place where the sagittal and coronal Sutures meet, making a Depression of the Bone, of about four Inches Diameter. The Symptoms attending this Accident were such as commonly attend Cases of a like Nature, that is, an universal Stupor, Bleeding at the Nose, Difficulty of Breathing, and a full irregular Pulse. I immediately took twelve Ounces of Blood from her Arm, and sent for all the Physicians and Surgeons of the Place, who agreed to trepan her speedily, which I perform'd. When I endeavour'd to raise the depress'd Pieces of Bone, they were all found separated from the neighbouring sound Bone, and therefore were all brought away, and so left a terrible Chasm in the Cranium. The Dura Mater was cover'd with a Syndon, dipt in Honey of Roses, with a little Tincture of Myrrh; Pledgets, wet in the Tincture, were apply'd to the Cranium, and the other common Dressings were put on. Being laid in Bed, an emollient Clyster was inject'd, and procur'd two plentiful Stools; and before Night she recover'd the Use of her Tongue, and all the other Parts of her Body, except the Left Arm, which continu'd in a paralytic State for eight Days. She was kept to a low Diet; and the Cure went successfully on, and was completed so far in three Months, that the Integuments were cicatriz'd.

"On the fifth Day after her Wound, I had caus'd a Plate of Lead to be made for covering all the Dressings, and kept it on all the time she was under my Care, with two Pieces of broad Tape put thro' four Holes, one on each Side of the Plate before, and the other two behind, tying the Ends under the lower Jaw, and behind the Occiput.

"Notwithstanding the Wound's being skinn'd over, I recommended the constant Use of the Plate of Lead laid over a Compress, upon the Cicatrix, to supply the want of Bone; and she kept it on two Months after I left off seeing her; but then, thinking herself secure, she laid it aside, and continu'd well seven Months more, when the Chin-cough, (*Tussis Convulsiva*) then epidemic in the Place, seiz'd her, and was so violent one Night, when she was in Bed, that the Cicatrix in her Head was lacerated, and the Brain was push'd out at the Teguments. Being instantly call'd for, I found above two Ounces of the Brain lying on the Scalp. After cleansing this away, I apply'd Dressings, with the Plate of Lead over them, thereby preventing a greater Discharge.

"The Symptoms that follow'd this direful Accident, were, an entire Paralysis of the Limbs, she retaining still the Use of her Reason and Tongue; but much inclin'd to Sleep, with a low depress'd Pulse, and Anxiety; and her Urine was discharg'd involuntarily. In this Condition she continued five Days, and then died."

'Tis sufficiently known, that, in this troublesome Species of Cough, the Circulation of the Blood is so obstructed, that the whole Face of those who are afflicted with it becomes monstrously

stroufly livid, and sometimes black; since no venous Blood, carried either from the internal or external Parts of the Head, can enter the Right Ventricle of the Heart, already full by the Convulsion of the Lungs, whilst the Left Ventricle of the Heart continues, in the mean time, to push the Blood thro' the Arteries: Hence the much distended Mass of the Brain broke thro' the Cicatrix of the Wound, which had now been cured for nine Months. Hence 'tis obvious, how violently the distended Vessels of the Brain press upon the Cranium.

In Cases of a Fissure, Fracture, or Contusion of the Cranium, the Arteries, Veins, or Lymphatic Vessels, within the Cranium, are sometimes broke, and discharge their respective Humours: Now these, by pressing on the Brain, produce the same Consequences as a Compression of the same Part by a Depressure of the Skull: These also, when converted into Pus or Ichor by Putrefaction, infect the extremely tender adjacent Parts of the Brain, and hence are productive of the same Disorders. These Vessels (the Veins and Arteries) are propagated from the Cranium to the Dura Mater, thence to the Pia Mater, thence to the Brain, its Sinuses and Ventricles, where, when ruptur'd, they produce various Inconveniences, both with respect to the Degrees of Danger, and Difficulty of Cure.

If the wounding Instrument is applied to the Head with such Force as to split, break, or, by a strong Contusion, to injure the Bone of the Cranium, 'tis obvious, that it is highly to be dreaded, lest the Blood-vessels, and others fill'd with finer Fluids, and dispersed thro' the Membranes and Substance of the Brain, should be broken, and by that means the discharg'd Humours, collected under the Cranium, compress the Brain; for, as we have already observed, since the whole Cavity of the Cranium is always perfectly full, the discharg'd Humours, collected here, must necessarily compress the Brain. All those Symptoms, therefore, which arise from such a Compression, and which have already been enumerated, are, on this Occasion, to be dreaded; for 'tis no matter what the compressing Cause is, since, whether, by a Change of the Figure of the Cranium, its Cavity is lessen'd, or whether the discharg'd Humours, whilst its Cavity remains the same, possess the Space formerly taken up by the Brain, the same Effects will be produced; which are a Perturbation, or total Abolition, of the Actions of the Brain; in consequence of its Substance being compress'd.

The Blood-vessels dispersed thro' the Dura Mater are sufficiently strong, since, as in most other Parts of the Body, they are furnish'd with callous Coats, in consequence of which they are with Difficulty broken: But when we consider, that the Dura Mater every-where adheres firmly to the Cranium, 'tis obvious, that the Force of the wounding Instrument, acting upon the Cranium, may be easily communicated to the Dura Mater, in consequence of their Contiguity to each other. When therefore the Cranium is split or fractur'd, there is great Danger, lest the Dura Mater, which adheres to it, should at the same time be lacerated or wounded by sharp Splinters of Bone. But the considerably large Blood-vessels distributed thro' the Pia Mater, and Medullary Substance of the Brain, are very tender, since, when they arrive here, they lose their callous Coats, as is plain from physiological Observations; for this Reason they are more easily broken, tho' they are more safely situated.

Besides, the Humours, discharged from the broken Vessels, stagnating, will spontaneously degenerate, and become corrupted; and, when they have acquir'd an acrid Quality, will, by inflaming, suppurating, and corroding, destroy the tender pulposus Substance of the Brain. Hence again will arise all those Symptoms which were observed to be produced by Compression; but they will be still more terrible in the former, than in the latter Case; because, when the compressing Cause is removed, there are some Hopes, that the Functions may be entirely restored; whereas when the Structure of the Brain itself is destroy'd, and its tender Vessels corroded, the Disorder is incurable. Now that, by an Effusion and Corruption of the Humours, such Symptoms may be produced, is obvious, from what has already been said, and what is specified relating to Wounds in general, under the Article VULNUS.

Hence 'tis obvious, that the most violent Wounds of the Head, when, by a Fracture of the Cranium, a free Passage is given to the discharg'd Humours, are often less dangerous, than when, in consequence of a smaller Wound, the effused Humours are retained under the Cranium, as has been before observed.

But that the Arteries and Blood-vessels, when broken, discharge their Contents within the Cranium, is not to be doubted; and that, by this Blood compressing the Brain, all the Symptoms already recounted have been produced, is obvious, from uncontroverted Instances. But 'tis more to be doubted, whether the Lymphatic Vessels, distributed thro' the Compages of the Brain, do, when broken by a like Accident, discharge so large a Quantity of Lymph as will, when collected, compress the Brain, since these Vessels are so very small; and since it

VOL. II.

rarely happens, that when the Blood-vessels, distributed thro' the Brain, remain entire, the Lymphatic Vessels alone are broken.

But that there are such Vessels, which convey the fine Lymph, is sufficiently certain; for the whole Surface of the Dura Mater, which lies above the Pia Mater, always appears moist; as also the whole external Surface of the Brain. The whole Circumference of the Ventricles of the Brain is also wet with this fine Fluid, without which the contiguous Surfaces of the Parts would soon coalesce, and grow together. Unless this highly subtle Fluid, which is continually discharged from the tender Vessels in the Form of Exhalations, is again resorb'd by the Veins, it is accumulated, and may produce all the various Disorders of the Brain. And many Instances, given by Authors, teach us, that this Lymph has been collected betwixt the Dura Mater and the Brain, betwixt the Pia Mater and the Tunica Arachnoides lying above it, and in the Ventricles of the Brain themselves; for *Winslow* has observ'd, that the whole Surface of the Ventricles of the Brain is cover'd with a very tender Membrane, which, by Anatomical Injections, and the Inflammations sometimes arising in it, is found to be of a vascular Structure; but the small Vessels, of which it consists, naturally contain only the fine Lymph, but not red Blood. Besides, what Anatomists commonly call Lymphatic Vessels, and which are always of a venous Nature, were here also discover'd, and are delineated by *Ridley*, in his *Anatomy of the Brain*. Since, therefore, when other Parts of the Body are wounded, an incredible Discharge of thin Lymph sometimes ensues, 'tis not only probable, that this may also happen in the Brain, but also confirm'd by the Observations of Physicians. Thus *Bohnus*, in his Work *de Remediis. Pulverum*, gives us an Account of a Boy of seven Years of Age; who, being struck with a Stick on the Head, died on the twenty-sixth Day, after having been afflicted with Head-achs, Watchings, Drowsiness, and a Vertigo. Upon laying open the Cranium, the anterior Ventricles of the Brain were found distended with a limpid and transparent Serum. In the *Miscellanea Curiosa, Decur. 1. An. 6. Observ. 12.* we have an Account of a Man of singular Distinction, who, falling down Stairs, dash'd the Left Side of his Head so violently against the Steps, that he lay like one half dead, without Sense, Motion, or Speech, almost for a whole Day. After Venesection he recover'd a little; but was seiz'd with a violent Pain of his Head, which rack'd him Night and Day, and entirely deprived him of Sleep. By the common Consent of the most skilful Physicians it was agreed, that the Trepan should be apply'd; and, when it was just about to be done, a serous Humour began to drop from his Left Ear, which continued dropping till about eight Pounds were discharged. There are many Observations of this Kind to be met with; but, in all these Cases, the Lymph was either found in the Brain, or discharg'd from the Ears, a considerable time after the Wound was inflicted; so that 'tis still somewhat dubious, whether this Accumulation of Lymph was produced by a Rupture of the Lymphatic Vessels, or by some other Cause.

As to the Veins and Arteries propagated from the Cranium to the Dura Mater, the Pia Mater, and the Brain, together with its Sinuses and Ventricles; since the Fluids discharged from these Vessels, when ruptur'd, are deposited in various Places of the Brain, they may, by Compression or Corrosion, injure its several Functions: Thus, for Instance, when the Humours discharg'd in the Ventricles of the Brain arrive at the fourth Ventricle, which is the Beginning of the Aperture, which runs down thro' all the Length of the Spinal Marrow, they may fall down thro' this Aperture, and produce various Kinds of Palsies and Hemiplegias. But when other Circumstances are alike, the Disorder will always be the more terrible, and the more difficult of Cure, in proportion as the extravasated Humours are lodged deep, or the reverse; for the Blood, collected between the Cranium and Dura Mater, will immediately be discharg'd upon perforating the Cranium. If it is lodged between the Dura and Pia Mater, it cannot be extracted without making an Incision in the Dura Mater. If the discharg'd Humours are lodged in the Ventricles of the Brain, or about its Base, 'tis obvious, that the Danger is great, and the Cure not only difficult, but sometimes also utterly impracticable; since the Attempts of Art, to procure a Discharge of the extravasated Humours which compress the Brain, may be vain.

A violent Concussion of the Head, without fracturing the Cranium, will frequently, on account of a Rupture of the internal Vessels, and consequent Compression of the Brain, cause the same Disorders, as the Pressure of the depress'd or fractur'd Bones of the Cranium upon the Brain have been said above to produce.

Sometimes it happens, in consequence of a Fall from an Eminence, or a violent Contusion of the Head made with an obtuse Instrument, that, whilst the Cranium is entire, the Brain is so wounded, that all the Symptoms already enumerated ensue. When, for Instance, one, falling from an Eminence, dashes

his Head against a hard Body, the Brain contain'd in the Cranium is carried downwards with the same Degree of Velocity ; but the resisting Body first stops the Motion of the Cranium : Hence the Mass of the Brain, moving at that Instant in its former Direction, may be forcibly dash'd against the Cranium, and thus remarkably injur'd ; just as when one, carried in a Ship, proceeds to move forwards, and falls when the Vessel is suddenly stop'd by any Obstacle. 'Tis, indeed, true, that, when the Cranium is entirely fill'd with the Brain, the Violence of this Shock is considerably lessen'd ; but that, even in this Case, the Vessels of the Brain may be ruptur'd, the Humours discharg'd, and the Symptoms arising from these Circumstances produced, is sufficiently plain from Instances given by Authors of unquestionable Veracity. Thus *Hippocrates*, in the second Book of his *Epidemics*, gives us the following Account : " A beautiful Damsel, of twenty Years of Age, and the Daughter of *Nereus*, was, in Sport, struck on the Sinciput with the flat Hand of a young Woman, her Companion. Upon which she was seiz'd with a Vertigo, accompanied with Dimness of Sight, and her Respiration ceased. When she was brought home, she was seiz'd with a Fever, her Head ached, and her Face became red. On the seventh Day, above an Ounce of a fetid reddish Pus was discharg'd from her Right Ear ; upon which she seem'd to be better, and had her Symptoms relieved ; but died on the ninth Day." 'Tis obvious, that by such a gentle Stroke, given with the flat Hand, the Cranium could neither be fissur'd, fractur'd, nor depress'd ; but that the Brain itself had been so wounded, that the Humours, discharg'd from the ruptur'd Vessels, degenerated into a fetid reddish Ichor, which Accidents were follow'd by the Death of the Patient. In later Authors many Observations occur, by which it is prov'd, that, even when the Cranium remains entire, the Brain may, by strong Percussion, be so wounded, that its larger Vessels being broken, and the Blood discharg'd within the Cranium, immediate Death ensues. But one Instance of this Kind is sufficient for our Purpose : *Bohnus*, then, in his Treatise *de Renunciat. Vulnerum*, gives us an Account of a Girl, who died on the fourth Day after receiving a violent Fall. He himself, as he tells us, examin'd the Body, in order to give in a Report to the Judges ; and tho' during the Time she lived, after the Reception of the Wound, and also after her Death, a large Quantity of Blood was discharg'd from her Mouth and Nostrils, yet no Effects of Violence could be discover'd in her Head. Upon laying open her Cranium, and elevating the Brain, the Left anterior Branch of the Carotids was found ruptur'd. By this Case we are taught, that this large Artery, situated safely, as it should seem, under the Basis of the Brain, may be broken by such a Concussion alone, whilst the Cranium, in the mean time, remains unhurt. Hence 'tis obvious, that the like Misfortune may happen to the other Vessels of the Brain. But since 'tis plain, from physiological Observations, that as soon as the Arteries, dispers'd thro' the Pia Mater, enter the cortical Substance of the Brain, they become extremely minute, and, as it were, villous, and that the small Medullary Fibres are continuous to these tender Vessels of the cortical Substance, 'tis very obvious, that, by such a powerful Concussion, these tender Stamina of the Brain, on which Life and the Animal Functions depend, may be broken ; and by that means all the various Depravations, or even a total Abolition, of all the Functions of the Brain, produced, tho' no Wound nor Effusion of Humours can be discover'd within the Cavity of the Cranium ; for these highly minute Vessels entirely elude and escape the Observation of the Senses. In the *Histoire de l'Academie des Sciences*, for the Year 1705. we have an Account of a robust young Man, who, in order to avoid being broke upon the Wheel, put his Hands behind his Back, and, stooping forwards with his Head, run so forcibly against the Prison-wall, that he forthwith dropt down dead, without uttering a single Word, or making the least Noise : When his Body was examin'd, no Contusion, no Tumor, no Fracture, were found in the Crown of his Head, the Part he dash'd against the Wall, as was attested by his Fellow-prisoners. When the Integuments were removed, no Wound appear'd on their internal Surface, which lies next to the Cranium, nor in the Cranium itself, except that the squamous Part of the Os Temporum was a little removed from the Os Bregmatis, on which it lies ; but, from this, so sudden a Death could by no means have follow'd. Upon cutting open the Cranium with a Saw, no Injury at all appear'd ; but the Brain did not exactly fill the Cavity of the Cranium, as it generally does ; and the Whole of its Substance appear'd more firm and solid, than in other Subjects it is found to do. From this Case it is obvious, that the sudden Death, produced by this violent Blow on the Head, could only be ascrib'd to this subsiding of the whole Brain, by which those tender Stamina, of which it consists, were either broken, or so contorted and shrivel'd together, that they were no longer pervious to the Fluids of the whole Body.

From what has been said we may also infer, that various Functions of the Brain may be injur'd, according as different

Parts of that Organ have been hurt by such a Concussion. *Hippocrates*, in the fifty-eighth Aphorism of his seventh Section, informs us, that " they who, by any Cause, have their Brain concuss'd, must necessarily be soon deprived of Speech." And, in the second Section of his first Book *de Morbis*, he tells us, that " a Person who meets with this Misfortune, must necessarily neither hear nor see." And *Heurnius*, in his Commentaries on this Aphorism, informs us, that he knew several Persons, who, in consequence of Falls upon the Occiput, lost the Senses of Smell and Taste all the rest of their Lives after. In the *Miscel. Curios. Dec. 1. An. 2. Obs. 120.* we have an Account of a Boy of four Years of Age, who could speak without any Difficulty, and who fell off a Desk on his Head ; but no Injury was observ'd to be done by the Fall. On the third Day, however, when he arose, he began to stammer in his Speech, tho' he was well enough in other respects ; and on the subsequent Days his Disorder increased ; but, by the Application of cephalic Fomentations to his Head, and the Exhibition of some Medicines internally, the perfect Use of his Speech was restor'd. In the *Histoire de l'Academie des Sciences*, for the Year 1732. we have an Account of a Man, who, in consequence of a Blow on his Head, labour'd under a Difficulty of Speech for many Years, when he lay down in Bed. Such a Concussion may not only happen by a Blow on the Head, but also by dashing any Part of the Body against a hard Object, in consequence of a Fall from an Eminence. Thus *Galen*, in the sixth Chapter of his first Book *de Locis Affectis*, gives us an Instance of a Man, who, falling from an Eminence, dash'd the Beginning of his Back upon the Ground : On the third Day his Voice became very low, and on the fourth he was entirely dumb : His Legs, in the mean time, were paralytic, but his Arms remain'd well ; and, on the seventh Day, his Speech, and the Use of his Legs, return'd. *Galen*, indeed, in this Case, attributed the Disorder to an Affection of the Spinal Marrow ; but since the Palsy seiz'd only the inferior Joints, it is obvious, that the Beginning of the Spinal Marrow was not injur'd ; otherwise the Hands would have become paralytic. Hence the Privation of Voice seems, in this Case, justly to be ascrib'd to the Concussion of the Brain.

The Disorders arising from a Rupture of the internal Vessels, either with or without an Injury done to the Cranium, are distinguish'd, by considering the Cause, its Violence, and the Part which receiv'd it.

When all these Circumstances are thoroughly known, they contribute considerably to the Discovery of latent Disorders ; for a blunt Instrument, forcibly apply'd to the Head, always lays a Foundation for suspecting either a Fracture or Fissure of the Cranium ; and the Danger is more or less, according as different Parts of the Head are wounded ; for in some Parts the Cranium is very thin, and in others considerably thicker. Besides, very considerable Arteries of the Dura Mater are, in some Parts, lodged in deep Sinuses of the Cranium ; for which Reason the wounding Instrument, apply'd to these Parts, may easily break these Vessels, and the discharg'd Blood may compress the Brain.

Bilious Vomitings,

Subsequent to Wounds of the Head, almost always denote, that the Brain is affected, whether it is compress'd by the discharg'd Humours, or its Action is disturb'd by the Violence of the Concussion : But of Vomitings of this Kind we have already spoke.

When the Senses of Seeing, Hearing, Smelling, Tasting, and Touching, are either diminish'd, deprav'd, or abolish'd,

'Tis a Sign, that the Brain is more or less affected ; for it is certain, from physiological Observations, that the Soundness of the Brain, and its free Communication with the Nerves subservient to these Senses, are requisite to the Perception of those Ideas which are represented to the Mind by the Interposition of the external Senses : Hence 'tis obvious, that if, in consequence of Wounds of the Head, the Whole or only some of these Senses are either deprav'd, or entirely destroy'd, the Brain is so affected, that the Origin of the Nerves subservient to these Senses, being either compress'd, or by any other means injur'd, is no longer capable of transmitting the highly subtle Spirits, secreted in the Compages of the Brain, and requisite to the Perfection and due State of the Senses.

A Vertigo, a Dimness of Sight, and Inability to stand, are also Signs of the Brain's being affected.

We have already observ'd, that the slightest Disorder of the Brain is a Vertigo, or an apparent Circumrotation of the visible Objects ; that, when the Disorder is increased, a Dimness of Sight is produced, in which Case the Disease is call'd *Vertigo tenebrosa*. Upon this the Strength of the Body is so far lost, that all its Members begin to fail, and the Patient drops down. Now this denotes, that not only that Part of the Common Sensory

Sensory is affected, which affords an Origin to those Nerves which are the Instruments of Sensation, but also that the Disorder has reached to those Parts in which the Origins of the Nerves, subservient to muscular Motion, are lodg'd. Hence *Hippocrates*, in the fifteenth Section of his Treatise on Wounds of the Head, when enumerating the Signs, by which it is known, that any one is severely wounded in the Head, joins these three Symptoms, Dimness of Sight, a Vertigo, and Falling down: And, in the tenth Section of the second Book of his *Prorrhetics*, he tells us, that, in all considerable Wounds of the Head, it is of Importance to know whether the Patient has dropt down, or fallen into a profound Sleep; for, if either of these has happened, the greater Care is required, for this Reason, that tho' these Symptoms do not always denote, that the Brain itself is wounded, yet they prove, that it is, at this Time, sensible of the Wound, τῇ ἐγκεφαλῇ ἐσακύναντο τὸ τρώματι.

In Wounds of the Head, a profound Sleep is always enumerated among the bad Signs; but, if a Stertor is join'd to it, it is still more formidable.

When, for Instance, the Patient, during Sleep, breathes deep, with a Noise, as happens to those who are apoplectic, then it imports, that all the Actions of the Brain are destroy'd by the Wound, and that only the Functions of the Cerebellum remain entire: And, in this Case, they are, for the most part, increas'd, since, in consequence of the free Circulation of the Blood thro' the Brain being hinder'd, the Circulation of the Fluids thro' the Compages of the Cerebellum is render'd quicker and stronger.

Palsies and Convulsions are also Signs, that the Brain is affected.

For since the Exercise of muscular Motion, so far as it is subjected to the Will, depends upon the Soundness of the Brain, hence all or some of the Muscles of the Body may become paralytic, in consequence of a Wound of the Brain; and, because the Muscles, thus affected, are flaccid and pendulous, they are said to be paralytic, or preternaturally relax'd. But, when a violent, alternately repeated, and involuntary Contraction of a Muscle, which ought to move by the Direction of the Will, happens, then a Convulsion is said to be present, which, in this Case, is generally produc'd, when the Transmission of the Spirits thro' some Parts of the Brain remains entire, and is obstructed in others. This Disorder may also be produced by Splinters of Bone pricking the medullary Substance of the Brain, or by the discharged Humours, when they acquire an acrid and corrosive Quality. Both Palsies and Convulsions, produc'd by Wounds of the Head, denote that the Brain is affected.

A Delirium is also a Sign, that the Brain is affected.

When the Ideas, excited in the Mind, do not correspond to the external Objects, but are produced by the Change induced on the Common Sensory, then the Patient is said to be delirious. Hence 'tis obvious, that, in Wounds of the Head, a Delirium is always a bad Sign, because it shews, that the Brain is affected, as has been observ'd above from *Hippocrates*.

A Lethargy also is a Sign, that the Brain is affected.

This Disorder is a State of Indolence and Oblivion, which destroys Motion and Sensation, and produces an irresistible Necessity of Sleeping, but in such a manner, that the Patients may be wak'd by such Things as powerfully affect the Senses, but they immediately fall asleep again. Hence this Disorder imports, that all the Actions of the Brain are much hindered, and, consequently, denounces great Danger.

An Apoplexy is another Sign, that the Brain is affected.

All the Symptoms already enumerated teach us, that the Brain is affected in such a manner, as to have some of its Functions deprav'd or abolish'd; but, when all the Actions of the Brain, all the internal and external Senses, and voluntary Motion, cease, the Action of the Cerebellum, which is subservient to the vital Motions, in the mean time, remaining, then an Apoplexy is said to be present, which is the highest Disorder of the Head, and generally is a Sign, that, in Wounds of the Head, the Brain is compressed by the discharged Humours.

Horripilation is also a Sign, that the Brain is affected.

This Symptom, following Wounds of the Head, almost always denotes, that the Blood is discharged from the Vessels, especially when it recurs irregularly, and does not accompany a beginning Fever. We also frequently observe, that, in several Diseases, such a Horripilation precedes considerable Changes. Hence 'tis always a bad Symptom in Wounds of the Head, as it is a Sign of a thorough Perturbation of the Common Sensory, by which such Concussions in the whole Body are caused.

A redoubled Fever is also a Sign, that the Brain is injur'd.

Every considerable Wound, whilst the Pus is forming, is accompanied with a slight Fever, which prognosticates nothing fatal; but, when this slight Fever is suddenly increased, or when, after it has ceased, a new and violent Fever appears, it always signifies, that some violent Disorder lies conceal'd. For this Reason *Hippocrates*, in his *Caute Prænotiones*, tells us, "That those who are wounded in the Head are generally seiz'd with a Fever, a Vomiting of Bile, and a Palsy; and that such Patients are in a bad State." And, in the Passage already quoted from his *Prorrhetics*, he says, "That it is the best Sign, when those, wounded in the Head, do not become feverish; but that, when any of those Symptoms happen, 'tis best they should appear in the Beginning. But when, in Wounds of the Head, a Fever begins on the fourth, the seventh, or the eleventh Day, it is a very fatal Sign;" for such a Fever denotes a new Inflammation, or a strong Suppuration, which, in this Case, are so dangerous. Hence, in the Case before specify'd from the second Book of *Hippocrates's* Epidemics, such a Fever was followed by the worst of Symptoms, and, at last, by Death; for the Girl, who was gently struck on the Sinciput with the flat Hand of her Companion, became immediately feverish; but when, on the seventh Day, a reddish fetid Pus was discharged with a Relief of the Symptoms, the Fever again increased, the Patient became lethargic, and lost her Speech, the Right Side of her Face was contracted, her Respiration became difficult, she was seized with a Tremor and Convulsions, and at last died on the ninth Day. In perusing those Authors who have wrote on Wounds of the Head, many such Cases occur, which teach us, that the Fever suddenly increasing after some Days, or appearing afresh, is an unlucky Prognostic, and almost always denotes, that the Brain is wounded or depress'd.

Blood discharged from the Mouth, Nose, and Ears, is also a Sign, that the Brain is affected.

It is not probable, that the Blood discharged within the Cranium can be evacuated thro' these Passages, since the Dura Mater so closely covers the internal Surface of the Cranium, that there can be no Evacuation made this Way. It is, indeed, obvious from several Cases, that chronical Disorders of the Head have often been relieved by a Discharge of Humours from these Passages, as *Hippocrates*, in the tenth Aphor. of his sixth Sect. observes, in these Words. "When any one labours under any Disorder, or universal Pain, of the Head, Pus, Water, or Blood, discharged from the Mouth, Ears, or Nose, put a happy Period to the Disease." But Anatomists have not as yet discovered the Passages, by which the Humours, contained in the Cavity of the Cranium, are thus discharged: Perhaps they are produc'd by the Disease, tho' they naturally had no previous Existence. Thus, in other Diseases, such Discharges of Humours are observ'd, tho' the Passages by which they are convey'd are not as yet discovered. A Pleurisy, for Instance, is carry'd off by Spit, convey'd thro' the Lungs, and expectorated. 'Tis certain, that if the Evacuation of the Blood, discharged within the Cranium, were so easy, there would be no Necessity for the Operation of the Trepan, which, however, is proved not only to be useful, but also indispensably necessary, by numberless Instances. But the Blood discharged from the Mouth, Ears, and Nose, is a Sign, that the wounding Instrument has struck the Head with great Force, since it was capable of breaking the Arteries: 'Tis, therefore, to be highly dreaded, that the Blood-vessels running thro' the Brain, and which no longer retain their callous Coats, are broken.

Redness of the Face and Eyes is also another Sign, that the Brain is affected.

The Blood, thrust from the Heart thro' the carotid Arteries, goes partly to the internal Parts of the Head, thro' what we call the internal Carotids, and is partly distributed thro' the external Carotids, which lie near the Face, and external Parts of the Head. When, therefore, by an Effusion of Blood compressing the Brain, the free Circulation of the Humours thro' that Organ is obstructed, the Blood is carried in a proportionably larger Quantity thro' the external Carotids, by which means the Face will become more red, tense, and florid; and since the internal Carotid, after it emerges from the bony Canal thro' which it passes, sends off Ramifications, which reach to the Orbit of the Eye, and the Eye itself, and there communicate with the Branches of the external Carotid, the Circulation of the Blood thro' the Vessels of the Brain being by this means obstructed, the Eyes become red, because immediately a larger Quantity of Blood is carried thro' these Branches of the internal Carotid which reach to the Eyes. For this Reason a Redness of the Face and Eyes is justly look'd upon as a bad Symptom in all Wounds of the Head. Patients afflicted with the most violent Apoplexy have their Faces red, turgid, and inflated. This florid Colour of the Countenance is, by *Hippocrates*, said to be

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an unlucky Omen in phrenetic Patients; and the Girl who died by a gentle Stroke of her Companion's flat Hand on the Sinicput, and whose Case we have already given from *Hippocrates*, had a Redness of her Face. In several Passages of *Hippocrates*, this Redness of the Eyes and Countenance is condemn'd. Thus, in his *Coacæ Prænotiones*, he tells us, "That they who have a Head-ach, Stupor, and Delirium, attended with Costiveness, a Fierceness and Redness of the Eyes, are seiz'd with Convulsions in the posterior Parts of their Bodies;" in which Passage he means, that the Eyes are fierce, turgid, and blood-shot, as happens in violent Fits of Anger: And, in the next Sentence, he adds, "In Concussions of the Head, red Eyes and a Delirium are very unlucky Symptoms."

When, from the preceding Signs, 'tis certain, that the Brain is wounded, whether the wounding Instrument has reach'd to the internal Parts of the Head, or whether the Brain is compress'd by a Depressure of the Cranium, or an Effusion of Humours, it ought to be determin'd in what Part of the Brain the Injury is done. 'Tis highly obvious, that a Knowledge of this must be a Circumstance of the last Importance, since the Operation of the Trepan can neither be judiciously nor successfully perform'd, till we know in what particular Place the Disorder is lodged. But 'tis frequently pretty difficult to determine the Part affected; for sometimes the Wound is found in a Place remov'd at a considerable Distance from that to which the wounding Instrument was apply'd, as we have already observed. It also often happens, that neither the Patient nor the By-standers can determine what Part of the Head has receiv'd the Blow. Nor can this certainly be determined by observing the injured Functions, in consequence of a Wound receiv'd in the Head. Hence it may, indeed, be concluded, that the Brain is wounded; but no one can, from that Circumstance, conclude what particular Part of it is injur'd. Who would take upon him to determine the particular Parts of the Brain, whence the various Nerves, subservient to the external Senses, derive their Origins? Who can ascertain the precise Seat of the Memory, and Faculty of Reasoning, in this surprising Organ? Some Men, justly celebrated for their Learning, have advanced surprising Hypotheses with respect to this Subject; but the Event has prov'd, that the greatest Geniuses are capable of falling into the most egregious Blunders, when they wantonly indulge themselves in Speculation. The great *Steno*, who was so skilful an Anatomist, frankly acknowledged, before a Set of Men eminent for their Learning, that he was an entire Stranger to the Structure of the Brain; and in a beautiful Dissertation, to be found under the Article *CEREBRUM*, destroys all the chimerical Hypotheses relating to this Subject, and pointed out the true Way by which human Industry can gradually attain to a Knowledge of this Organ. By the Signs, however, hereafter enumerated, we are, with all our Art, to inquire into the Part of the Brain affected; and if, notwithstanding an accurate Examination of these, the Surgeon should err, the Miscarriage is not to be attributed to his want of Skill, but to the Defect of the Art, which, perhaps, the Discoveries of succeeding Ages may amend.

The injured Part, therefore, within the Cranium, is distinguished, first, by the external Appearances already describ'd; secondly, by an Investigation of the particular Injuries received by the Cranium, in the manner already taught.

For when it is discover'd, that the Cranium is hurt, and, at the same time, any Symptoms appear, which give Reason to believe, that the Brain is affected, 'tis highly probable, that the internal Injury lies immediately under that which is external.

Thirdly, by a Tumor and Redness of the Skin after shaving the Head, and the Application of a Plaister to it.

When, by the Signs already recounted, it is obvious, that the Brain is wounded; and when, at the same time, there is no particular and distinguishing Circumstance, by which the Part affected can be determin'd, then Surgeons endeavour to discover it in the following Manner: They shave off the Hair, and then apply to the whole Head any aromatic Plaister, which they suffer to remain for some Hours. Then, taking off the Plaister, they carefully examine whether any Tumor or Inflammation appear in any Part; and, if these are found, we may justly suspect, that the wounded Part lies under them. For, since this Plaister adheres to the Skin of the Head, and, by its mild aromatic Stimulus, excites a somewhat brisker Motion of the Humours, if there is any Contusion, it will the more easily appear, when a Tumor arises. When it cannot be discover'd in what Part of the Head the Wound is lodged, *Hippocrates* pronounc'd the Disorder incurable by any Medicines.

Fourthly, by a spontaneous Motion of the Patient's Hand to a particular Part of the Head.

Tho' we cannot ascertain the particular Reason why this is done, yet we are certain, from incontestable Facts, that it is so. Very lately, says *Jan Swieten*, I saw a Man, who had fallen from an Eminence, lying without any Sense; and, as he had dash'd the Right Part of his Head and Face against a hard

Object, and had a strong Contusion, and slight Wounds of these Parts, he forthwith lifted up his Right Hand, and not only touch'd, but pretty strongly rub'd, the Parts affected. Two Hours after, when, in consequence of a liberal Venesection, he recover'd a little, he said, that he was conscious of nothing after his Fall. Whilst Surgeons, therefore, observed, that the Hands of Patients thus wounded were, by a kind of mechanical and necessary Motion, convey'd to the wounded Part, they thought they had Reason to conclude, that, when no external Wound appear'd, the Part affected was indicated, if the Patient's Hand was, by such a mechanical Motion, always carry'd to a particular Part of his Head. In apoplectic Patients the same Phenomenon also frequently appears. This Sign seems to be of considerable Importance, when several such repeated mechanical Motions appear, which are not perform'd by the Direction of the Will, nor predetermined by any Act of the mental Powers, but to which our Bodies themselves are wisely and necessarily determined by the bountiful Author of our Natures, to attempt the Removal of what is hurtful and injurious to them.

Fifthly, from a Palsey on one Side, and Convulsions on the other.

That corporeal Organ of the Body, upon which Sensation and voluntary Motion depend, seems to be double with respect to its Origin, Collection, Distribution, and Operation; for there is a Right and a Left Carotid Artery, and a Right and a Left Vertebral one: From these arise the Right and Left Hemispheres of the Brain, which are intirely distinct from each other. The whole Collection of the Medulla is also divided into two Partitions, one on the Right, and another on the Left Side; which evidently appears in the Corpus Callosum, the Fornix, the Crura medullæ oblongatæ, the optic and olfactory Nerves, as also in the spinal Marrow, and the Nerves distributed from it. But, tho' all these Parts are thus found double, yet the Man who perceives and feels by their means, is but a single and individual Man; for the two olfactory Nerves, so distinct in their Origin and Progress, at last excite the same Sensation of Smelling. Tho' with our two Eyes we doubly see each Object presented to them, as is obvious from the intermediate Space between the two Eyes, or from gently pressing the Bulb of either Eye with the Finger, yet Vision is only single. This same Observation holds with respect to the Sense of Hearing.

Since, then, the Brain, the immediate Instrument of Sensation and Motion is double, 'tis hence obvious, that one Part of it may remain sound, whilst another may become entirely unfit for performing all its several Functions, as is plain in an Hemiplegia, in which Disorder half of the Body is rendered so paralytic, that none of the Motions depending on the Direction of the Mind remain in it: Yet the conscious Faculty, which designs and directs the Motion, remains; and though the Person so affected endeavours, as much as possible, to move the affected Side, yet no subsequent Motion is produced in the Muscles; and sometimes, in the worst Species of this Disorder, all Sensation is also entirely destroy'd on the affected Side.

Hippocrates, in the third Section of his Book *de Morbo Sacro*, made this same Observation in the following Words: "The Brain, says he, of Man, as well as of all other Animals, is double, and divided in the Middle by a slender Membrane; for which Reason the Head does not always ache in one Part, but sometimes in one, and sometimes in another; and sometimes the Whole of it feels the Pain." A subtle Question here arises, which is, Whether this Origin of Sensation, and Principle of Motion, are situated on the Side opposite to that on which their Effects are produced; that is, Whether the Origin of the Sensation and Motion, exercised on the Left Part of the Body, is lodged in the Right Side of the Brain, or in the Left: But this must be determin'd by the minute Observations of accurate and skilful Anatomists; and, when this Circumstance is fully known, it will be of singular Service in Wounds of the Head, to determine, from the Disorder of the Sensations and Motions on either Side of the Body, what particular Part of the Brain is wounded.

The soft and pulpy Substance of the Brain has always laid a Foundation for great Difficulties in Anatomical Demonstrations: But its Consistence is least of all firm in young Persons, whereas in an advanced Age, and especially in those Men who have been accusom'd to hard Exercise, it is more firm, and capable of being handled with greater Freedom. In such Subjects, after, by a long-continued Maceration, the cortical and cineritious Substance of the Brain has in a great measure been dissolved, it has evidently appear'd, that the medullary Fibres, arising in the Right Side of the Brain, were stretch'd out to the Left Side, and *vice versa*. But this Direction of the Fibres is principally observable in three Parts, that is, in the anterior and posterior Border of the annular Protuberance; and still more conspicuously in the Extremity of the Medulla Oblongata, where it terminates in the Spinal Marrow. But this Phenomenon is most distinctly observ'd about two Lines below the *Corpora Pyramidalia* and *Olivaria*; for if the *Corpora Pyramidalia*

midalia are gently drawn from each other, not slender Fibres, but large Congeries of them are observ'd to run across each other to the opposite Parts, as *Sanzerini*, in his *Observat. Anatom.* Cap. 3. has observ'd. This is almost all that Anatomy has discover'd, with respect to the Direction of the medullary Fibres of the Brain.

Several medicinal Observations confirm this decussated Action of the Brain. *Hippocrates*, in the fifth Book of his *Epidemics*, gives us an Account of a Girl of twelve Years of Age, whose Cranium was contused and fractur'd; but the Trepan being injudiciously apply'd, she died on the fourteenth Day. Her Left Hand was seiz'd with Convulsions, tho' the Wound was inflict'd on the Right Side of the Head. In his *Conce. Prænotiones* he tells us, that those who are wounded in the Temples, are seiz'd with Convulsions on the Side opposite to that on which the Wound is inflict'd. And, in the nineteenth Section of his Treatise on *Wounds of the Head*, he confirms the same Doctrine, by advising Surgeons not rashly to make Incisions in the Region of the Temples, because such Incisions produce subsequent Convulsions; and he affirms, that if an Incision is made in the Left Temple, the Right Part of the Body will be seiz'd with Convulsions; but that, if the Incision is made in the Right Temple, the Left Side will of course be convulsed. And, in the thirty-first Section of the same Book, when he enumerates the Signs by which it is known, that a Patient wounded in the Head will die, he affirms, "That most Patients so wound-
"ed are seiz'd with Convulsions on the Side opposite to that in
"which the Wound was receiv'd; for, if there is a Wound
"on the Left Side of the Head, the Right Side of the Body
"will be seiz'd with Convulsions; but, if the Wound is on the
"Right Part of the Head, the Left Side will be convulsed." Thus, in these early Ages of Medicine, such were the Observations which favour this Opinion.

Among later Authors, *Fabricius Hildanus*, who generally only simply relates what he saw, without any Admixture of Reasoning, has various Observations, which confirm the Truth of this Doctrine. Thus, in his *Observat. Chirurg. Centur. 2. Observ. 3.* he gives us an Account of a Man of forty Years of Age, who, being struck on the Left Bregma with a Ball of Iron, which weigh'd more than a Pound and an half, had his Cranium considerably depress'd and fractur'd; upon which he dropt to the Ground like one dead; and not only lost his Speech, Sight, and Hearing, but was also seiz'd with a Palsy on the Side opposite to that on which the Wound was inflict'd. By elevating, however, the depress'd Parts of the Cranium, and using other proper Means, he was restor'd to perfect Health. In the same *Century* of that Work, *Example 3.* he gives us an Account of a Man of sixty Years of Age, who, by the Blow of a Stone, had the Left Part of his Os Frontis, where the Hairs begin to grow, considerably depress'd: He no sooner receiv'd the Blow than he dropt to the Ground, lost his Speech, his Reason, his Sight, and his Hearing; and had the whole Side, opposite to that on which the Wound was receiv'd, seiz'd with a Palsy. His Friends would not suffer an Incision to be made in the Integuments, and the depress'd Parts of the Cranium elevated, so that he died a few Days after.

In the thirteenth Observation of *Centur. 1.* he gives us an Account of a Woman, who received a Wound with Contusion in the Right Os Bregmatis, accompanied with a Fracture and Depression of the Cranium. Upon this she immediately vomited up a bilious Humour, together with crude and indigested Aliments; and her Left Side became paralytic, whilst the Right was seiz'd with Convulsions. She recover'd, however, tho' a large Quantity of the Substance of the Brain was extracted thro' the Wound. In the nineteenth Observation of the same *Century*, he gives us an Account of a robust young Man, who, with a Club, receiv'd a Wound on the Left Bregma, accompany'd with a Fracture of the Bone. After dilating the Wound, and extracting the Splinters of the Cranium, the Wound was almost cover'd with a Cicatrix in the Space of five Weeks; when, a few Hours after Venereal Intercourse with a Courtesan, he was again seiz'd with a Fever; and the Pain of his Head became more violent than before. The opposite Side, in the mean time, became paralytic; the Arm, on the Side on which he had receiv'd the Wound, was seiz'd with Convulsions; and, on the fourth Day after, he died. In the *Histoire de l'Académie des Sciences*, for the Year 1700, we have an Account of a Boy, who, falling from an Eminence, receiv'd a Wound in his Head, which at first was thought to be but slight. Some time after, however, the Bone began to be denuded in the Middle of the Wound; and in the Sagittal Suture a small Hole appear'd, thro' which a large Quantity of Pus was discharged. This Evacuation was sometimes stop'd for a few Days; and, at this time, his Right Arm was four or five times a Day violently convulsed, for the Space of a Quarter of an Hour; as also the Jaw on the same Side. As soon as the Evacuation of Pus return'd, these Convulsions ceas'd. At last, upon the Patient's Death, the whole Left Lobe of his Brain was found suppurated, whilst the Right Lobe and Cerebellum remain'd entirely sound.

VOL. II.

Valsalva, in his Treatise *de Aere humana*, affirms; that, in the Dissection of many Subjects, either of whose Sides had been paralytic, he always found the Cause of the Disorder lodg'd in the opposite Side of the Brain; and mentions Men of Skill and Learning, who were present at these Dissections: And if, on any Occasion, he found the Wound extending to the other Side of the Brain, yet he observ'd, that it was more considerable in the opposite Part. Among the Men of Skill and Learning, who were present at these Experiments, he mentions *Petrus Molinellus*, Doctor of Philosophy and Medicine, who, in his *Comment. de Bononiensi Scientiarum & Artium Instituto*, made the following remarkable Experiment: He open'd the Left Part of the Cranium of a live Dog; then, making frequent Punctures in the Dura Mater, he observ'd, that the Dog was thrown into various Convulsions, especially when that Part of the Dura Mater, which adher'd most firmly to the Cranium, was prick'd; but the Animal never became apoplectic. At last he extracted the Left Lobe of the Brain entirely; upon which the Animal immediately fell, not on the Left Side, as might have been expected, but on the Right; and, being rais'd up, fell down again on the same Side. The Right Part of his Body seem'd, in the mean time, to be deprived of all Sensation and Motion; whilst the Left, on the contrary, retain'd both. He adds, that he knew others who had tried the same Experiment with the like Success; and, from these Circumstances, concludes, that *Morgagni* and *Lancisi* had just Reason to affirm, that we might easily conjecture what Part of the Brain was injur'd, provided we only remark what Side of hemiplectic Patients was affected.

Many other Cases might be brought, which both in other Disorders, and in Wounds of the Head, confirm the Truth of this Doctrine; but these already given are sufficient: And this Doctrine is, in a particular manner, confirm'd by the last-mention'd Experiment made upon the live Dog. 'Tis not, however, to be denied, that, in practical Authors, some Instances occur, which seem repugnant to this Sentiment.

Thus *Forestus*, in *Observat. Lib. 10. Obs. 11.* gives us the Case of a Boy of eleven Years of Age, who, falling into a violent Lethargy, had, whilst fast asleep, the whole Right Side of his Body so affected with a Palsy, that the Powers both of Sensation and Motion were destroy'd in it. *Forestus*, being call'd, and having no other Medicines at hand, apply'd Thyme, beat up with Vinegar, to his Right Nostril, by which the Boy seem'd to be somewhat relieved; and, at the same time, a thick, highly corrupted, bloody, and viscid Matter, resembling putrid Sanies, was discharged from the Nostril. From this Circumstance *Forestus* prognosticated, that there was an Abscess and Sphacelus lodg'd in the Right Part of the Brain. Soon after, the Boy died: But *Forestus*, before his Death, concluding his Case to be desperate, intended to leave him; but was detain'd by a Lady of Distinction, who had the Care of the Boy in his Parents Absence, with a View to have the Body dissected, the Cause of his Death discover'd, and a just Account of the Accident given to the Parents. The Cranium being divided, the posterior Parts of the Brain and Cerebellum, on the Right Side, were found entirely sanious, putrid, corrupted, and bloody; but, on the Left Side, the Brain was white, sound, and uncorrupted. Thus the Truth of the Prognostic, discover'd in the Subject, procur'd a large Share of Reputation to *Forestus*. This Case, so accurately described, is directly repugnant to those before given, and seems to be of considerable Moment.

Bonetus, in his *Sepulch. Anatom. Pract. Lib. 1. Sect. 15. Observ. 27.* gives us an Account of a Youth, who was wounded in the Region of the Left Bregma. Next Day convulsive Motions were observed in his Right Side, and his Left became paralytic. The whole Region of the Left Bregma was found contused to such a Degree, that eight Splinters of Bone were spontaneously separated, one of the sharpest of which had pierc'd both Meninges, and was found lodg'd in the Substance of the Brain itself. In this Case, the Side on which the Wound was inflict'd became paralytic, and the opposite Side was convulsed, which is quite the Reverse of what happen'd in the above-mention'd Instances.

Valsalva, in the fifth Chapter of his Book *de Aere humana*, frankly and ingenuously confesses, that, in one or two Instances, the Disorder to him appear'd equal in both Hemispheres of the Brain; but that he had most frequently found that Side of the Brain affected, which was opposite to the paralytic Side.

But we must observe, that frequently no Disorder has, after Death, been found in the Brain, tho', before Death, its Functions have been highly impair'd and disorder'd; for a slight Change or Compression of the tender Stamina, of which it is composed, is sufficient to produce the most terrible Symptoms, as *Valsalva*, in the Place above quoted, proves by a beautiful Experiment.

The Nerves of a Dog, which are distributed to the Heart, being strongly compress'd by a Ligature, which was immediately after removed, they were so weaken'd in their Structure, that

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the Dog died some Days after, just as if they had been cut off; but, upon being inspected, the smallest Marks of any sensible Injury they had sustain'd were not to be discover'd: Hence it may happen, in such Cases, that, by the Concussion only, the opposite Hemisphere of the Brain may be injur'd, tho', at the same time, no Disorder should be discover'd after the Death of the Patient; which will appear still more probable, when we consider, that the Cranium is often fissur'd in the opposite Part, whilst that on which the Blow was received remains entire, as we have already observed.

Since, then, numberless Observations made by celebrated Authors, and Experiments tried on live Animals, confirm this decussated Action of the Brain, which is the immediate Instrument of Sensation and Motion; since there are only few Instances repugnant to this Doctrine, and since even these may be explain'd in such a manner as to appear less inconsistent with it, it is obvious, that it is, if not certain, yet at least highly probable, that, if the one Side is paralytic, and the other convulsed, then the Origin of the Disorder is lodged within the Cranium, in the Part opposite to the paralytic Side: But if the Convulsion seizes the Right Side, and if no Disorder is observable in the Left, then, for the same Reason, it seems highly probable, that the Left Part of the Brain is so affected, that the equable Influx of the Spirits into the Muscles of the Right Side is indeed disturb'd, tho' not entirely obstructed. Such Cases occur among the Instances already given.

But it is to be particularly observed, that, in the Nerves, this Opposition of Direction does not obtain, which, by these Experiments, is discover'd in the Brain; for the Nerves, arising in the Right Part, are distributed thro' the same Side. Some celebrated Anatomists have been of a different Opinion, and believed, in particular, that the Optic Nerves mutually decussated each other; and that each of them reach'd to the Eye of the opposite Side: And some Philosophers have been of Opinion, that this Circumstance might enable us to account for many Phenomena in Optics. A fortuitous Instance has, however, prov'd the contrary: The celebrated *Santorini*, as we are inform'd in the third Chapter of his *Observat. Anatom.* was dissecting the Body of a Man, whose Right Eye had, for a long time before his Death, been blind of a true *Amaurosis*; tho', at the same time, no apparent Disorder was observable in the Eye itself. The Optic Nerve of this Eye was found slenderer, and of a more dark and cineritious Colour, than it ought to have been: And, when this accurate Anatomist was diligently tracing it as far as he could, he perceived, by the Diversity of its Colour, that it always kept the Right Side. He evidently observed, at the same time, that the Optic Nerves were so far from decussating each other, that they were not so much as mix'd; but that they only lay just by each other, and were again disjointed.

When it appears, that the Functions of the Brain are injur'd, whatever be the Cause, by the Application of which to the Head such an Effect is produced, our first Care is to inquire into the Nature of the Hurt or Injury; as, whether it be a Compression of the Brain from the forcing inwards of the Cranium, a Puncture or Laceration of the same Part by some sharp Fragments of that Bone, an Effusion of Humours under the Cranium, or, lastly, a violent Concussion. The diagnostic Signs belonging to each of these Cases have been shewn already; and the Cure of a depress'd Cranium has been treated of above.

By a violent Concussion, the very tender and pulpy Substance of the Brain may be affected in such a manner, as to have its minutest Vessels compress'd by the Shock, so as to prevent the Passage of the Humours thro' them: But if these Vessels are not broken, or wholly destroy'd, an equable Circulation of the Humours will open anew these compress'd minute Canals; and, after some Hours, the Brain will, by degrees, resume its Functions. If there be any thing settled under the Cranium, which may compress or hurt the Brain, the general Indication directs us to remove it; in which Case it will appear reasonable to observe the following Rules:

First, Then, the extravasated Blood is immediately to be taken away;

Because, so long as it remains, it will press upon the Brain; and, if this Pressure continues long, the Sides of the small Canals, thus compress'd, will grow together, and remain for ever impervious; and hence an incurable Impediment to the Functions may arise.

Secondly, The Parts infected must be depurated,

And cleansed from the extravasated Humours, corrupted by their Stagnation, and converted into Pus, Ichor, or Sanies: And the solid Parts, if affected, must be deterg'd, and reduced to a sound State.

Thirdly, If any Splinters of Bone stick in the Brain, they must be taken away.

The extravasated Blood is taken away,

First, By Resorption.

In Contusions where, the Vessels being broken, an Effusion of Blood settles under an entire Skin, and marks the Place affected with a black or blue Spot, we very frequently observe all the extravasated Liquid to disappear by degrees, being insensibly resorb'd into the bibulous Vessels of the Veins, and attenuated by the Afflux of thinner Humours. What should hinder, then, but that the same Effect might be accomplish'd in such a Place as this, of which we are speaking? Now extravasated Blood, in a closed Place, where the Air has no Access, may settle a very long time, without being corrupted.

Secondly, By Dissipation;

Which is effected, when the extravasated Blood is so attenuated by Diluents and Resolvents, as to be resorb'd into the venous Vessels, which are open, and extended over all the internal, as well as external, Superficies of the Body; and is by that means dissipated, and insensibly disappears.

Thirdly, By perforating the Cranium.

When the Quantity of extravasated Blood is so great, as, by its strong Compression, to injure the Functions of the Brain to a very considerable Degree, the Case will not allow us Time for the Removal of so great an Inconvenience by the slow Ways of Resorption or Dissipation; for the Patient would often sooner perish. There remains, then, no other Help, but the necessary, tho' cruel, Remedy of the Trepan; by which, the Cranium being perforated, a Passage is open'd for the Discharge of the extravasated Blood.

We come now to give Directions how each of the three fore-mention'd Intentions may be answer'd.

The Blood is said to be resorb'd, when it is repel'd, by the vital Powers, into the Veins evacuated by plentiful Bleeding, and succedaneous Purging.

If we open the Cranium of a living Animal, which is young, and which, for that Reason, will the more easily admit of having the Cranium removed, there manifestly appears a Vapour to exhale from the internal Parts, the Surfaces of both Membranes are cover'd with Humidity, and the whole Circumference of the Ventricles is moisten'd with a thin Sort of Dew. The finest and minutest Vessels, being thus in a State of continual Exhalation, must, by that means, discharge a very thin Liquid, such as moistens and cherishes these internal Parts. If, therefore, there were no resorbent Veins in those Places, the Quantity of Liquor would by degrees be so accumulated, as, by Compression, to destroy the Functions of the Brain; and hence I conclude, that the extravasated Blood must be resorb'd by the gaping Orifices of these minute Veins. It may seem strange, perhaps, that the Blood, which immediately concretes when out of the Vessels, should be capable of entering these very fine Tubes; but if we consider, that the extravasated and concreted Blood is by degrees again dissolved, and reduced to a thinner Liquid; and the sooner, as such an Effect is promoted by the Influence of a kindly Heat, and the very fine dewy Exhalations which are continually diluting the coagulated Blood; and further, that the Cranium, being always full, is strongly press'd; and that the arterious Fabric belonging to the Brain, and especially the Vessels of the Dura Mater, are alternately distended and contracted by the Blood impel'd by the Heart; it will appear from these Considerations, that the extravasated Blood is not a Moment free from Pressure, Attrition, and Dilution, with the finest of Liquids; whence it may, at length, be so attenuated, as to be capable of entering the least Orifices of the absorbent Veins. But since these minute absorbent Vessels convey the Humours, after Resorption, to Veins of a larger Capacity, the Resorption will be facilitated by the Depletion of the larger Veins; for which Reason, taking away a large Quantity of Blood is here recommended. Again, such Cathartics as strongly evacuate, and, without Acceleration of Motion, or adding a Stimulus, powerfully resolve, are proper to discharge the Body of Humours; which being effected, those Humours which remain are attenuated, and, their Passage into all Parts being facilitated, the Vessels are less distended. By these means an easy Ingress is open'd for the resorb'd Humours into the exhausted Veins; and the Body, being render'd drier by these Evacuations, greedily absorbs the Liquids, where-ever contiguous to its internal or external Superficies: Hence strong Purges are observed to excite a vehement Thirst; and Liquids, drank in great Quantities, are very quickly absorb'd by the gaping Orifices of the Vessels, in the Cavities of the Stomach and Intestines. The great Efficacy of this Method, for Resorption of extravasated Blood, is apparent to Sight in great Contusions. I knew a Tumor, says *Van Swieten*, in the Nates, as big as a Child's Head, which was occasion'd by a Fall out of a Coach, totally dissipated by this Method, tho' all the Part was black, from a Stagnation of the extravasated Blood under the entire Skin. Now scarce any one will venture to say, that this Blood perspir'd thro' the unbroken Skin; for, if the coagulated Blood might be attenuated to such a Degree as to find a Passage, by Exhalation, thro' the

the Vessels of the Skin, it cannot be doubted, but that they very well enter the Mouths of the absorbing Veins: Great Benefit, therefore, may be expected from this Method.

The Forms of Purges, recommended on these Occasions, in *Boerhaave's Mat. Medica*, are the following:

Take of the finest Syrian Scammony, fourteen Grains; and of Hungary Water, two Drams: When they are sufficiently triturated in a Glass Mortar, add six Drams of solutive Syrup of Roses with Sena, for a Draught. Or,

Take of the Powder of Jalap-root, one Dram; and of the finest Sugar, two Drams: When they are sufficiently triturated in a Glass Mortar, add gradually, and at different times, three Ounces of Rain-water. Make into an Emulsion; to which add half an Ounce of the Syrup of Rhubarb, for a Draught.

Bleed, therefore, and purge, immediately upon these Occasions, to the greatest Degree the Patient can bear; and let these Evacuations be repeated, and that more than once, if after the preceding the Symptoms are alleviated.

Such large Evacuations, provided the Strength hold out, can never be prejudicial to the Patient, especially plentiful Bleeding, which, on the contrary, tho' repeated, has been found of excellent Service; for it has been frequently observed, that, where there have been all the Indications of a Compression of the Brain by an Effusion of Blood under the Cranium, the Symptoms have immediately remitted under a very bold Phlebotomy, tho' the Trepan was ready to be apply'd. And tho' the Disease should not give way to these Remedies, but it should be found necessary afterwards to have recourse to the Trepan, it can be of no Disadvantage to the Patient to have his Body, by this Method, rendered less subject to an Inflammation, since hereby some very bad Symptoms, which are sometimes consequent upon a Perforation of the Cranium, and especially the Generation of Funguses of the Brain, are, in a great measure, prevented. These Remedies, therefore, seem proper first to be tried before Trepanning. If, then, those bad Symptoms, which attend the Compression of the Brain by an Effusion of Humours, begin to be alleviated, we may conceive good Hopes, that, by their repeated Use, respect being always had to the Strength of the Patient, they may be wholly removed. I remember, says *Boerhaave*, with Pleasure, the extraordinary good Effects of this Method, which I have often seen; and *Paré* has a remarkable Example of Bleeding boldly, successfully repeated. A young Man, he says, twenty-eight Years of Age, by a Fall, had struck the Left Os Bregmatis with great Violence against a Stone. There was a Contusion, but no Fracture of the Cranium. On the seventh Day the Patient was seiz'd with a strong Fever, Delirium, and a great Inflammation, with a vast Tumor of the whole Head, Face, and Neck, besides an Impediment of Speech, Sight, and Deglutition. The next Day the Surgeon took away twelve Ounces of Blood; and, the Day after, *Paré* being sent for, and finding that these very bad Symptoms did not remit, but that the Strength was firm, he had forty-two Ounces of Blood more taken away. The following Day the Disorder rather increasing, he took away twelve Ounces more, and after that fifteen Ounces at two several times; so that, within the Space of four Days, the Patient lost eighty Ounces of Blood, and was afterwards perfectly cur'd of so dangerous a Disorder. The great *Hippocrates* has indeed observed, *Aphor. 3. Sect. 1.* "That Evacuations, carry'd to Extremity, are dangerous;" but, in his sixth *Aphor.* of the same *Sect.* he says, "That Diseases in their Extremity require extreme Remedies." Since, therefore, this young Man was in danger of his Life without speedy Relief, we see the Reason for such large Evacuations, which, in slight Disorders, no prudent Man would venture to use.

The Dissipation of the stagnating Humours is brought about,

First, By a Resorption of the finer Parts, in the manner just mentioned;

Secondly, By attenuating the rest, by diluting, aqueous, and resolvent Potions, drunk very warm.

If Blood, taken from the Vein of a healthy Person, and coagulated, be shaken in warm Water, the coagulated Mass will decrease by degrees, Water pour'd upon it grows red, and at last so little of it will remain as is scarce credible; some of it will, however, still remain, perhaps because the Blood has been so long expos'd to the open Air; for we every Day see the extravasated Blood, in Contusions, dissolv'd in such a manner as to be entirely dissipated. Wherefore, after Phlebotomy and Purging, let as great a Quantity of aqueous Decoctions be drank, as the Strength is sufficient to move and circulate with the Blood. By this means all the Blood is diluted, and the exhaling Fluid is supplied with Plenty of Matter, whence the coagulated Mass is insensibly dissolved, and afterwards resorb'd into the

minute Veins. But, because aqueous Liquors, drank by themselves, especially after great Evacuations, enervate the Body to such a Degree as to dispose it to a Dropsy, by beginning to collect themselves together in its Cavities, therefore mild Aromatics, which are gently resolvent, and also stimulating to Motion, which can do no Harm after the preceding Evacuations; are mix'd with these Decoctions.

For our whole Intention is directed to the rendering of the Blood so very much diluted, that a sufficient and perpetual Exhalation of a thin Liquid through the small Vessels may be continually apply'd to the extravasated Blood, till this be render'd also so diluted and attenuated, as to be capable of Resorption into the Veins.

Boerhaave's Prescription, in his *Mat. Medic.* is as follows:

Take of white Sanders, half an Ounce; of yellow Sanders, one Ounce; of Sassafras, half an Ounce; of the Leaves of Rue, half a Handful; of Agrimony, one Handful; of the Flowers of Arabian Stoechas, and Lavender, each two Drams; of the Roots of Fennel, Parsley, and Butcher's-broom, each an Ounce: Boil these for a Quarter of an Hour in a close Vessel, with a sufficient Quantity of Water for four Pints of the strain'd Liquor, of which let the Patient take two Ounces every half Hour.

Thirdly, By applying to the Part affected, when shaved, Plaisters, Cataplasms, and Fomentations, made of discutient, nervous, and cephalic Ingredients.

These Remedies, indeed, cannot act directly and immediately on the extravasated Humours, which are settled under the Cranium, since the external Parts of the Head receive almost all their Humours from the external Carotids. They will, however, be of Efficacy, by warming and relaxing the external Parts of the Head, so as to lessen and retard the impetuous Motion of the Humours towards the inward Parts; and also because Part of these Remedies enters the Blood by the resorbent Veins of the external Skin, and afterwards, in the common Course of Circulation, may be convey'd to the Part affected. Nor is it always worth while to dispute about the Manner, in which Remedies thus applied act, provided we are convinc'd, by Experience, of their Efficacy. Thus, when an acute inflammatory Distemper seizes the internal Parts of the Head, we find, that Fomentations of Water, Vinegar, and Nitre, are very successfully applied to the Head, being first shaved. Wherefore, in so dangerous a Disorder as is our present Subject, all Methods are to be put in Practice, and nothing left untried, from whence any Benefit, tho' never so little, may be expected. But, in the Use of those Remedies, regard is always to be had to what has been said above, with respect to the Application of Topics in Injuries done to the Integuments only; and we must always take care to have the Cataplasms and Fomentations kept in a due Heat, which is done by a frequent Application of hot Woollen Cloths. The Plaister and Fomentation directed above, in case of Contusion of the Integuments, are here proper.

Fourthly, By the Application of the same discutient, nervous, and cephalic Ingredients to the Ears and Nose.

The Dura Mater, it is true, most exactly covers the internal Superficies of the Cranium, so that the whole Mass of the Brain seems to be secluded from all others within its proper Region: However, we are convinced by Observations, that these two Places are a kind of Vent-holes to the Brain, by which the Humours are often discharg'd in a surprising Manner. We took Notice above, that chronical Disorders of the Head are often very quickly relieved by an Efflux of Water, Pus, or other Matter, thro' the Ears or Nostrils, and confirm'd the same by the Testimony of *Hippocrates*: And it is well known, that in all Diseases of the Head, which proceed from a Repletion of the Vessels of the Brain, or an inflammatory Density of the Humours, an Efflux of Blood by the Nostrils has proved beneficial. We have also related Examples above, by which it appeared, that in very terrible Hurts of the Head, which, by the unanimous Advice of the most experienc'd Physicians and Surgeons, required the Use of the Trepan, the Patients have been cured by an Efflux of Lymph thro' the Ears; so that the nearest Way to the internal Parts of the Head seems to be thro' these Passages. Of this we are certain, that on the Top of the Nostrils is placed the Os Ethmoides, like a thin Plate full of Perforations, which, indeed, in a living Person, are most exactly fill'd up with Vaginal Processes, and nervous Fibrils, from the Dura Mater; but how thin is the Partition, which, in this Place, separates the Cavity of the Cranium from the Nostrils! So that Vapours attracted thro' the Nostrils are almost immediately applied to the Brain.

If, after the Evacuations and Applications above directed, the Symptoms are not entirely removed, or, at least, much diminish'd, but, on the contrary, persevere or increase, the Cranium must immediately be perforated by the Trepan, for the Convenience of discharging the extravasated Humours, depurating

depurating the affected Parts, and removing the Splinters of Bone, if any should stick in the Brain, or its Membranes.

It seems a Piece of Rashness and Cruelty to be immediately for perforating the Cranium, upon Indications that the Functions of the Brain are very much injured by a Wound of the Head: For, unless we are certain, that the Cranium is depress'd, or that some Fragments of it hurt the Brain, and that these Disorders can no way be remov'd but by the Trepan, it is best to wait a few Hours at least, and try whether the Symptoms may not be mitigated by strong Evacuations: For many such Cases occur every Day; as where a Person, by a Fall from an Eminence, lies depriv'd of all Sense and Motion, and, after a few Hours, revives by degrees, the Brain being disturbed by so strong a Concussion, tho' there was no Effusion of Humours. And tho' it might be proper to apply the Trepan, yet the taking away a large Quantity of Blood can never be prejudicial, but on the contrary, be highly beneficial: Therefore the Method before propos'd seems fittest always to be tried in the first Place; and if, in the Space of twelve Hours after the Use of those Remedies, the Patient receives not the least Relief, but the Disorder rather increases, the last and only Remedy left is, by making a Perforation in the Cranium, to open a Way for the Discharge of the extravasated Humours. The Friends of the Patient are to be then seriously told, that nothing but Death can be expected, and that in a short time; that the only Way, by which it can possibly be prevented, is by the hazardous and troublesome Operation of the Trepan, from which there is good Reason to expect much Benefit, but that a certain Cure cannot be promised: For it is possible, that the extravasated Humours may be lodg'd in such Places, as, tho' the Cranium be opened, may render their Discharge impracticable; and a strong Concussion may break the very tender Stamina of the medullary Substance of the Brain, on which the human Life and Functions depend. When the Operation is determin'd to be necessary, the sooner it is perform'd, the better; for the Efflux of the Liquids out of the broken Vessels will continue, and the Compression of the Brain, by the extravasated Liquid, which increases in Quantity every Moment, will be augmented; whence it often happens, that the very tender medullary Fibres, which are only pervious to the thinnest Liquid in all the Body, having their Sides compress'd, and render'd contiguous, cease to be open Canals; and tho' the compressing Liquids may be afterwards discharged, yet the Sides of these minute Vessels, being once rendered contiguous by the equable Pressure of the surrounding Liquid, will always continue in that State of Contact; whence they will grow together, to the irreparable Damage of all those Functions which depend on the Motions of the most subtle Liquid thro' these minute Vessels: Besides, the extravasated Humours, being left to settle for a considerable Time, may be corrupted, and, by their acquir'd Acrimony, corrode every thing near them. From the Whole it appears, that Delay in this Case is dangerous; and yet, by very credible Observations, we are inform'd, that Perforation of the Cranium has been very successfully perform'd a long time after the Hurt was receiv'd: For Instance, a Man receiv'd a Wound in his Head, which, being attended with no bad Symptoms, was healed in fourteen Days. A long time afterwards the Patient was seized with a great Pain of the Head, a Vertigo, and Dimness of Sight, with a Palsy of the Right Arm; all evident Symptoms of some latent Disorder of the Parts of the Head. Upon this Consideration *Santetus*, (*Arm. Chir. Obs.* 13.) the nine-and-twentieth Week after the Wound was inflicted, laid bare the Cranium, and, observing a narrow Fissure, he made two Perforations in the Cranium, and cut out the Bone between them with a Saw. Tho' this wide Aperture the Collection of Humours under the Cranium was discharged, and, in a Month's time, the Patient was restor'd to his perfect Health. From this History it plainly appears, that the Quantity of extravasated Liquid under the Cranium was at first but inconsiderable; but the Cranium being divided with a small Fissure, there arose, by degrees, a Collection of Pus or Sanies in the Place. But when, after a Rupture of the Vessels, there immediately gathers a considerable Quantity of the effused Liquid under the Cranium, it is plain, that the Operation cannot long be deferred without Danger. Wherefore *Hippocrates*, *de Cap. Vuln.* speaking of those Cases which require Perforation, says, "That in three Days we must proceed to Section, and never exceed that Time, especially if we undertake the Cure, at first, in a hot Season of the Year:" And yet he is treating here only of such Wounds of the Cranium as could not be erased with the Rugine; but the Danger is more imminent and pressing from an Effusion of Humours under the Cranium.

Trepanning the Cranium is usually undertaken, as is said above, for the sake of raising a loose and depress'd Bone with the Elevator, but, in this Case, a threefold Benefit may be expected from it: First, The opening a free Passage for the Discharge of the extravasated Liquids; secondly, That, if any thing should require to be separated by Suppuration from the living Parts, the Pus, after it is generated, may find a Vent; and,

lastly, That the Fragments of the Bone, which incommode the Brain by Puncture, Laceration, or otherwise, may conveniently be extracted.

Mr. *Sharp* seems not to agree entirely with *Boerhaave*, but is for trepanning at all Adventures: Altho' People with Concussions in a violent Degree, says he, sometimes recover, it is so very seldom, that there can be no Pretence, when they happen, for neglecting the Trepan, but not being able to learn in what Part the Concussion is. The Opportunities I have had, says *Sharp*, of opening some People who have died under this Circumstance, have sufficiently convinc'd me, how little is to be trusted to any other Method than an Opening for the Discharge of the Abscess, which, by Confinement of the Matter, becomes very sharp, spreading over a great Quantity of the Brain before it kills.

When we are assur'd of a Fracture or Depression, tho' the Symptoms, in a great measure, go off, it is yet advisable to trepan as soon as possible, to prevent the spreading of the Abscess, which seldom fails to follow upon the Rupture of the Vessels of the Brain and Membranes, and, for the most part, in a few Days, tho' there are a great many Instances of Fractures not bringing on a fatal Abscess for a great Length of Time after the Accident.

Sharp says, he once trepan'd a young Woman about a hundred Days after she receiv'd the Blow. The lower Part of the Parietal, and upper Part of the Temporal Bones, were fractur'd and depress'd. She had bled at the Nose and Ears when she first receiv'd the Injury, and had at times been drowsy, and in some little Pain, till towards the ninetieth, when the Symptoms of a compress'd Brain came on stronger; and, a small time after, she put herself under his Care; which, with the many Instances of the same kind to be met with in Authors, shew how little safe it is to trust to any Extravasation, or Depression on the Brain, doing well, without the Assistance of the Trepan. *Sharp*.

The Trepan is to be applied upon the Part of the Cranium which is injur'd, as being the most proper Place, unless any Circumstances render its Application there improper.

After it is agreed upon to apply the Trepan, in order to procure a free Discharge to the extravasated Humours, it ought next to be diligently inquir'd, on what particular Part of the Cranium this Operation is to be perform'd. 'Tis sufficiently obvious, that, when by the Signs already enumerated the wounded Part is discover'd, the Trepan ought to be apply'd there, since 'tis most probable, that the extravasated Blood will reside in that Part; but, from what follows, it will appear, that there are various Parts of the Cranium, where it is either absolutely impossible, or highly dangerous, to apply the Trepan. The Part, then, to which this Instrument is to be apply'd, ought not to be determin'd without mature Deliberation and Reflection, lest afterwards the Repetition of this Operation, apparently so cruel in the Eyes of the By-standers, tho' the Patients themselves are, on these Occasions, generally so stupid and dull as to be insensible of Pain, should again become necessary.

The Circumstances which render Trepanning immediately upon the injur'd Part of the Cranium improper are,

First, A Suture lying immediately under it.

Whilst, in a human Subject, Anatomists endeavour to elevate the Cranium after it is every-where divided with a Saw, they evidently perceive, that the Dura Mater, almost in every Part, adheres to the Cranium; but that, where the Sutures occur, this Adhesion is so strong, that, by the Interposition of an Iron Lever, it can with Difficulty be separated. 'Tis, therefore, obvious, that if, in these Parts, the Trepan is apply'd, the orbicular Portion of Bone cut cannot be extracted without a considerable Dilaceration of the Dura Mater; whence an immense Pain, Convulsions, and other terrible Symptoms, may be produc'd. For this Reason, by the common Consent of all Authors, these Parts are avoided, and the Trepan is rather to be applied on either Side of the Suture, than directly on it. *Hildanus*, in *Observ. Chir. Cent.* 2. *Observ.* 8. gives us an Account of a Man who receiv'd a severe Wound with an Ax, in that Part where the Sagittal is united with the Coronal Suture. After very terrible Symptoms, and the Extraction of several Splinters of Bone, the Patient, indeed, recover'd; but *Hildanus* could not, with all his Art, prevent a fistulous Ulcer remaining in the Part. For this Reason he ranks the Difficulty of Cure among the Arguments used against applying the Trepan immediately upon the Sutures: But the celebrated Physician *Johannes Fredericus Werdnburgius*, in an Epistle to *Hildanus* on this Subject, to be met with in the last quoted Part of that Author, affirms that he saw this Operation perform'd immediately on the Sutures, when he resided in *Italy*, for the sake of Improvement in his Studies. But 'tis obvious, from what has been now said, that it is always dangerous to apply the Trepan on the Sutures themselves.

Secondly,

Secondly, Some remarkable Muscles lying upon the Part.

'Tis sufficiently known, that about the Occiput very strong Muscles are inserted in the Cranium, and that its lateral Parts are, on both Sides, possessed by the Temporal Muscles; for which Reason these Parts ought, if possible, to be avoided. *Hippocrates*, in the nineteenth Section of his Treatise on Wounds of the Head, informs us, "That the Head may be safely cut in any Part, except in the Temples, and that Space which lies above them, near the Vein which passes thro' the Temples; and that these Parts ought not to be cut, because, by that means, the Patient is seized with Convulsions." And, in a Passage of his *Coacæ Prænotiones*, already quoted, he tells us, "That they who are cut in either of the Temples, become convuls'd on the Side opposite to that on which the Incision was made." From which we may conclude, that it is always dangerous to wound these Muscles, tho' Death does not always ensue; for many Cases prove, that these Muscles have been cut, and the Trepan apply'd to that Part of the Cranium which lies under them, and that, notwithstanding this, the Patients have recover'd. We shall give a few Instances of this kind from among the great Number that might be brought *Scultetus*, in his *Armamentar. Chirurg. Observ.* 3. gives us an Account of a Man who receiv'd a Wound in his Left Temple with a Hanger, which made a Fissure in his Cranium large enough to admit the fore Finger; yet this Wound, apparently so dangerous, was soon cur'd, and the Patient sav'd. *Riverius*, among the Observations communicated to him by *Samuel Formius*, a Surgeon of *Montpelier*, who had practis'd for fifty Years, gives us the following Case, in the nineteenth Observation: A certain Woman receiv'd a Blow with a Stone on her Left Temple. When the Trepan was thought necessary, that skilful Surgeon, being call'd to the Consultation, did not hesitate to make a crucial Incision in the Temporal Muscle, and apply the Trepan to the denudated Cranium; and he affirms, that no violent Symptom ensu'd. He elsewhere gives us another Case of a like Nature, which was communicated to him by another Surgeon. A Boy of twelve Years of Age, by a Fall from a high Tree, had his Temporal Bone so fractur'd, that the Surgeon was forc'd to remove a large Portion of the Temporal Muscle, in order to discover the latent Disorder, and apply the Trepan. The Cure, however, succeeded happily in every respect, except that the lower Jaw remain'd a little distorted towards the opposite Side. Where Necessity, therefore, demands it, it is more advisable to apply the Trepan to these Parts, than cruelly to abandon the Patient to inevitable Death.

Thirdly, The Cavities of the Os Frontis lying under it.

It is sufficiently known, from anatomical Observations, that the Tables of the *Os Frontis*, divided from each other, constitute what we call the Frontal Sinuses, which are, for the most part, pretty large; but of different Sizes in different Men, lengthen'd out above the Orbits of the Eyes, almost to the Middle of the Eye-brows, and sometimes divided into lesser Cavities by bony Lamellæ. These Sinuses open in two pretty large Apertures, at each Side of the Septum Narium, and thus increase the internal Cavity of the Nostrils. These Sinuses are every-where cover'd with the same Membrane which lines the internal Surface of the Nostrils. If, therefore, the Trepan was apply'd here, upon perforating the external Table, this Membrane, which covers its internal Surface, would forthwith occur; and there would be a Necessity for removing it, as well as that Part of the same Membrane, which, in like manner, covers the internal Table, before the internal Table could be perforated. 'Tis therefore obvious, that this must be highly difficult, if not altogether impossible; since the Membrane, lining the Cavity of the Nostrils, is so exquisitely sensible, that, by the slightest Agitation of a Feather in the Nostrils, Sneezing is excited, and the whole Body convulsed. We must, at the same time, observe, that those Wounds, which penetrate to the Frontal Sinuses, can scarcely ever be brought to a Cicatrix. *Celsus*, in the fourth Chapter of his eighth Book, made this Observation; and expressly tells us, "That, after the Application of the Trepan, a Cicatrix may be induced on all Parts of the Head, except that Part of the Forehead which lies a little above the intermediate Space between the Eye-brows; for here it is scarce possible, but, during the Whole of the Patient's Life, an Exulceration must remain, which must be cover'd with a Cloth, on which some proper Medicine is to be laid." The Observations of later Authors have since given a Sanction to this Remark. These Parts, then, the Situation of which is to be learn'd from Anatomy, are carefully to be avoided in the Application of the Trepan.

Fourthly, The Neighbourhood of some considerable Artery.

Upon accurately viewing a prepar'd human Cranium, in its internal Surface, various Impressions appear, and sometimes considerably deep Traces, which correspond to the Ramifica-

tions of the larger Arteries distributed thro' the Dura Mater: But if such a large Branch of an Artery should occur, and, during the Operation, happen to be lacerated by the Teeth of the Crown, a violent Hæmorrhage may happen, which not only embroils and disturbs the Operation, but is often stop't with Difficulty. But it is a difficult Task exactly to determine these Parts; because, in different Men, the Situation of these large Ramifications varies: There are, however, some Parts in which these larger Sulci, or Furrows, are generally found in most Craniums; these Parts are, therefore, to be avoided in applying the Trepan. Thus; for Instance, in both the *Ossa Bregmatis*; near the Coronal Suture in the inferior lateral Part, such a large Furrow appears, and is gradually diminish'd as it ascends; but these Parts are principally known by a mutual Comparison of different Craniums with each other.

Fifthly, The low Situation of the Part injur'd.

For if the discharg'd Humours are lodg'd near the Basis of the Cranium, there is scarce any Hope, that they can be evacuated by the Trepan, since it must of course be apply'd much higher. 'Tis, indeed, true, that, since the Cranium is always exactly full, the extravasated Humours may, by the Pressure of the Brain which fills the Cavity of the Cranium, be forced up to the Perforation made, and thus evacuated. But; at the same time, 'tis obvious, that this Effect must be with considerable Difficulty brought about. *Tulpius*, in the third Chapter of the first Book of his *Observ. Medic.* gives us an Account of a Man of seventy Years of Age, who, being drunk, and falling from an Eminence, receiv'd so large a Wound in his Cranium, that, thro' the Aperture, every thing that stuck in the external Membrane of the Brain might be extracted. He was, however, forthwith seiz'd with a Vertigo, a Vomiting, and a Stupor. Next Day, indeed, he appear'd free from a Fever, and all other Symptoms; but, on the fourth Day, he unexpectedly died apoplectic, after having expectorated a purulent Matter. Upon laying open his Cranium, a large Quantity of Humour was found in the Ventricles of his Brain; and, near the *Sella Turcica*, a large Splinter of the *Os Cuneiforme* appear'd separated from the rest of the Bone; and there was, in this Place, a large Collection of coagulated Blood. Since, then, thro' so large a Wound, the discharg'd Blood, collected near the Basis of the Brain, could not be evacuated, 'tis obvious, that, in such a Case, very little Good was to be expected from the Application of the Trepan. Hence *Celsus*, in the twenty-sixth Chapter of his fifth Book, justly affirms, that "the Patient, the Basis of whose Brain is wounded; cannot be preserv'd."

Sixthly, The Instability of the Bone, whether on account of a Fracture, Contusion, or Caries.

Upon applying the Trepan to the Cranium, the orbicular Portion of Bone cannot be extracted, without pressing the Trepan to the Bone: If, therefore, that Part of the Bone, to which the Trepan is apply'd, is either entirely disengaged from the rest, or only retains a slight Cohesion, it will, in the Operation, be depress'd, and the subjacent Brain by that means compress'd. The same Misfortune is to be dreaded, when a *Lues Venerea*, for Instance, has corroded the Bone, or when the Cranium has, by any other Cause, contracted a Caries; for, in these Cases, the Trepan, applied with a very gentle Force, would forthwith penetrate thro' the whole Thickness of the Bone. We have already given Instances of the Bone of the Cranium becoming thus corrupted, after Wounds of the Head.

Seventhly, A considerable external Convexity, and; in consequence of that, an internal Concavity of the Part.

Upon accurately examining the internal Surface of the Cranium, it evidently appears, that it is not smooth and even, but that in some Parts it protuberates and rises; whereas in others it is more excavated, that it may be the better accommodated to the Vessels and Sinuses of the contain'd Brain: Hence the Bone of the Cranium is of a different Thickness in different Parts. It would, therefore, be most proper, whilst we are deliberating on the Part to which the Trepan is to be apply'd, to take a View of several Craniums, and observe in what Parts these Inequalities are principally found, that we may, if possible, avoid them.

Tho', from the Rules of Art, and an anatomical Knowledge of the Parts, it is sufficiently obvious, that, in the Application of the Trepan, the seven Circumstances above enumerated render the Application of it, upon the Places above-mention'd, improper, if it can be avoided; yet the best Surgeons have, in Cases of Necessity, advis'd to perform the Operation, tho' it should be attended with some of these Disadvantages; since, when the Death of the Patient is otherwise certain, it is often better to try a doubtful Remedy than none at all; for it is scarce credible, that all these Cautions could be observed, with respect to a Girl of twelve Years of Age, who, falling from an Eminence, had the Trepan apply'd to twelve different Parts of her Cranium,

Cranium, in the Space of a few Days. The Girl, however, was perfectly cured, tho' the whole Os Bregmatis, and Part of the Temporal Bone, were entirely fractur'd by the Violence of the Fall. This memorable and surprizing Case is related by *Dionis*, in his *Operat. de Chirurgie*, whose Son perform'd the Operation, the fourth time, on the Patient.

If any of the above related Circumstances render the Application of the Trepan, to the injur'd Part, improper, it must be apply'd as near as is possible to that Part.

When, for the Reasons above enumerated, the Trepan cannot be apply'd on the wounded Part, the Place, of all others the most proper for its Application, is that which is free from these Obstacles, and lies most contiguous to the Part immediately afflicted. Some-Cautions, however, of considerable Importance, are to be observed, with respect to this Particular: The Dura Mater, as has been before observ'd, adheres everywhere to the Cranium, but most strongly where the Sutures occur: Hence the discharg'd Blood, lodging between the Cranium and Dura Mater, may separate the latter from the former; but this cannot happen in those Parts where the Sutures occur: Hence the Blood, extravasated between the Cranium and Dura Mater, will remain confin'd within certain Limits; since it cannot easily go beyond the Parts where the Sutures occur. Thus, for Instance, if the wounded Part was in the anterior Portion of the Os Bregmatis, which, on account of its Vicinity to the Coronal Suture, by which it is join'd to the Os Frontis, and the large Artery which is generally situated here, cannot have the Trepan safely apply'd to it; then, indeed, the Place most contiguous to it is to be chosen, but, at the same time, this Place must be contain'd within the Os Bregmatis; for, if the Trepan was apply'd to the Os Frontis, on the other Side of the Coronal Suture, the Blood lying below the Os Bregmatis, on the Dura Mater, could not be evacuated; because the Dura Mater, adhering strongly to the Coronal Suture, will prevent its being discharg'd that Way. With this Limitation we are, therefore, to understand the general Rule, which orders us to chuse the most contiguous Part, when the Trepan cannot be apply'd to the Part affected itself; for the Blood, extravasated between the Cranium and Dura Mater may thus be lodg'd, as it were, in distinct Cells, which have no manner of Communication with each other. The largest Space of this Kind is under the Ossa Bregmatis, and is, by the Sagittal Sutures, divided into two such equal and distinct Cells. This also holds with respect to the Forehead, which, in like manner, has a Space thus separated; for, since the Os Frontis is generally in young Persons, and often in Adults, divided as far as the Root of the Nose, by a middle Suture, it is obvious, that this Space must, in like manner, be divided into two.

But, when the extravasated Blood is lodg'd between the Dura and Pia Mater, we must remember, that the whole internal Cavity of the Cranium is divided into two Parts; for what is commonly call'd the Falci-form Process of the Dura Mater, reaches from the Crest of the Os Ethmoides, all along the Sagittal Suture, as far as the transverse Process of the Dura Mater, which covers the Cerebellum, and defends it from the Pressure of the incumbent Brain, and, being sunk deep between the two Hemispheres of the Brain, divides the internal Cavity of the Cranium into two, and hinders the Blood, extravasated on the Right Side, from reaching to the Left. For this Reason we are, in Cases of this Nature, to have a due Regard to the now mention'd Circumstance.

If the threatening Symptoms of a compress'd Brain, above related, are very urgent, tho' the precise Place, where the Compressure resides, cannot be exactly determin'd, yet the Trepan must be apply'd to one or more Parts of the Cranium, if necessary, in order to remove the Pressure, and deperate the Part affected.

It sometimes happens, that all the Symptoms inform us, that the Blood, extravasated under the Cranium, compresses the Brain; and yet, at the same time, there are not certain Indications, by which it can be determin'd in what Part of the Cranium it is lodg'd. In this Case the Patient must either be abandon'd to certain Death, or the Trepan must be apply'd to the Cranium, whilst the Event is entirely uncertain; for the extravasated Blood may be lodg'd about the Basis of the Cranium, or in the Ventricles of the Brain; in a Word, it may be accumulated in a quite different Part from that to which the Trepan shall be apply'd. In this Case, after having duly apprised the Patient's Friends of the ambiguous Event of the Operation, it seems more advisable to try a doubtful Remedy than none at all; especially since, from numberless Instances, 'tis plain, that the Operation of the Trepan, when skillfully perform'd, is not so dangerous as it is commonly thought; and since the Patients, who stand in need of it, are generally entirely depriv'd of Sensation. Thus *Dionis*, in his *Operat. de Chirurgie*, informs us, that he himself, after having apply'd the Trepan in a young Gentleman of Distinction, evacuated the Blood discharg'd under the Cranium; and that the Patient

never knew of his having undergone such an Operation, till he was told of it, after the Cure was completed: Hence, tho' a Repetition of this Operation in another Part of the Cranium, when it has prov'd unsuccessful in a former Attempt, may appear cruel to the By-standers, yet it is not generally very painful to the Patients themselves. But when we know nothing at all of the Part affected, then the Trepan is generally apply'd to the Os Bregmatis; because it constitutes the largest Part of the Cranium, and because considerably large Vessels lie under it. If by this means no Disorder is discover'd, the Operation is to be attempted afresh in the Os Bregmatis of the opposite Side. We do not find, that *Hippocrates* repeated the Operation of the Trepan in one and the same Patient: But, so far as we can learn from his Book on *Wounds of the Head*, he did not apply the Trepan in order to procure a Discharge to the Humours extravasated under the Cranium, but only with a View to remove the affected Part of the Cranium itself. In the fourth Section, indeed, of the above-mention'd Book, he observes, that the disorder'd Bone of the Cranium may collect Pus, which may fall down on the Brain; but he makes no Mention of an Extravasation of Humours, in consequence of a Rupture of the Vessels, under the sound Cranium: Hence he did not, in all Probability, apply the Trepan, except when it was evident, that the Cranium was disorder'd, and when the Part affected was known. Accordingly, when the Bone was broken in another Part of the Head than that in which the Wound was inflicted, he, in the tenth Section of the same Work, asserts, that the Disorder was incurable by any Remedies. *Celsus*, however, seems to have been acquainted with such an Extravasation of Humours; for, in the fourth Chapter of his eighth Book, he has these Words: "Sometimes, tho' rarely, it happens, that the Bone remains sound and entire, whilst, in consequence of a Blow, some Vein, ruptur'd in the Membrane of the Brain, discharges some Blood internally, which, stagnating there, excites violent Pains, and, in some, produces Blindness. But, generally, there is also a Pain in the opposite Part, where, an Incision being made, the Bone appears pale, and is therefore also to have the Trepan apply'd to it." In the same Chapter he also orders the Trepan to be apply'd in various Parts, if the Fissure is long.

In later chirurgical Authors various Instances occur, by which 'tis prov'd, that the Trepan may, with Success, be apply'd to several Parts of the Cranium. Thus *Dionis*, in his *Operat. de Chirurg.* gives us an Account of a Man, who, by a Fall from a Horse, receiv'd a Wound in the Os Bregmatis. Upon applying the Trepan, a large Quantity of Blood was evacuated, but without any Alleviation of the Symptoms. Three Days after, a Tumor appear'd on his Occiput: When this Tumor was laid open, the Trepan was a second time apply'd to the Os Occipitis: A large Quantity of Blood was discharg'd from the Perforation; and, whilst this Blood was flowing out, the Patient began to return to himself, and was at last perfectly cur'd. This Case excellently confirms what we advance'd in the preceding Paragraph, which was, that the Blood, extravasated between the Dura Mater and the Cranium, was lodg'd in separate Cells, which have no Communication with each other. The same Author, in the above quoted Work, gives us an Instance of a Girl, who had the Trepan successfully apply'd to both Bones of the Bregma. *Scultetus*, in *Armamentar. Chirurg. Observ.* 7. informs us, that he was forced to apply the Trepan seven times in one Day, about the Circumference of a Depressure of the Cranium, receiv'd by a certain Captain; who, in the Space of two Months, was, nevertheless, so effectually cur'd, that he was able to perform the several Functions of his Office with Approbation and Applause. And, in the memorable Case already related, a Girl of twelve Years of Age had the Trepan apply'd to twelve different Parts of her Cranium, and yet was at last happily cur'd. *Salingen*, the most celebrated Surgeon of the Age in which he lived, in his *Manuale Operation der Chirurgie*, gives us a still more memorable Case. *Philip* of *Nassau*, descended from the illustrious House of *Orange*, by a Fall from a Horse, had his Head so violently dash'd against the Stump of a Tree, that his Cranium was fractur'd in various Parts: For this Reason the Trepan was twenty-seven times apply'd to different Parts of his Cranium, by a Surgeon of *Nimwegen*, and yet the Patient recover'd. This Account *Salingen* saw confirm'd under the Hand of the illustrious Patient, after his Recovery. And the same Author adds, that *Philip* was, after this Accident, so robust, that, at a Drinking-match, he kill'd three of his Companions.

Hence 'tis obvious, that the Operation of the Trepan, tho' frequently repeated, is sufficiently safe, provided it is perform'd with Judgment; the Method of doing which we now come to consider.

When the Place for the Operation is fixed upon, and the Hair shav'd off, the Integuments must be cut thro', and separated from the Cranium, the Lips of the Wound must be lifted up, the Bone dry'd, and cover'd with Lint, the Blood stop'd, the Pain mitigated, Inflammation prevented; and then, if the Symptoms are not very pressing, the Part must be properly

properly bound up, and the Operation be defer'd till the next Day.

After the Place for the Application of the Trepan is fix'd upon, the Cranium must be laid entirely bare of its Integuments, lest the Teeth of the Trepan should lacerate the soft Parts left. We must be particularly careful, that none of the Pericranium be left, since a Laceration of it with the Ruginé or Trepan excites violent Fevers and Inflammations, as has already been observed from *Celsus*. Hence, when the Hairs are shav'd off, a crucial Incision is to be made in the Integuments to the very Bone, as we have already directed on another Occasion. The four Angles of the Incision thus made are to be rais'd, and the Pericranium separated from the Cranium with the Fingers, or a Ruginé. With soft Pledgets, a little warm'd, the Blood is to be wiped from the Surface of the denudated Bone. Then a Pledget of the like kind, with a little finely powdered Mastich, sprinkled upon it, is to be applied to the denudated Cranium. Lint is also to be put under the elevated Integuments, that they may recede the farther from the denudated Bone. The Hæmorrhage is, in this Case, generally slight, and soon stops; but if any considerably large arterial Ramification should happen to be cut, the Hæmorrhage may be stop'd by the Application of warm Alcohol, or the Effusion of Blood may be stay'd by the Application of a proper compressive Bandage for some Hours; or, where the Symptoms are very urgent, the cut Artery may commodiously enough be ty'd, by passing a Thread thro' that Part of the Integuments where it lies; for 'tis sufficiently obvious, that the Trepan cannot be apply'd so long as the Hæmorrhage continues, since the Effusion of Blood would immediately hinder the Operator from examining how far the Perforation of the Cranium was carried on. The Pain attending the Operation may be alleviated, by gently anointing the Parts with Unguentum Populeum, which is highly soft, and at the same time of an anodyne Nature; but generally Patients, in this State, are dull, and insensible of Pain. If an Inflammation is dreaded, and especially if the Trepan is not to be immediately apply'd, but the Operation defer'd till the following Day, 'tis proper to foment the Parts with Water and Vinegar. Thus *Hippocrates*, in a Passage before quoted, when the Cranium was to be laid bare, after making the Incision in the Integuments, order'd the Wound to be fill'd with Lint, in order to enlarge it with as little Trouble as possible; but, at the same time, during the Use of this Lint, he advis'd the Application of a Cataplasm of fine Flour, boil'd in Vinegar to a proper Consistence, in order to prevent too great an Inflammation.

We now come to inquire whether, when the Cranium is laid bare, the Operation ought to be deferred for a few Hours, or till next Day; or whether it ought to be performed immediately. It seems proper, then, always to perform this Operation as soon as possible, since it is rarely us'd except in urgent Cases. Three Causes are generally assigned by some Surgeons, why they would have the Operation deferred: The first is, because the Shaving off the Hairs, the Incision of the Integuments, and their Separation from the Cranium, require a considerable Time. Hence, they think, the Patient's Friends take it ill, that he should be subjected to longer Torments. The second is, the Dread of an Hæmorrhage after an Incision of the Integuments: And, lastly, they would have the Operation deferred, because the cut Integuments, being spontaneously retracted, will render the Wound larger, and, by that means, afford an easier Access to the Trepan. But if we consider, that such Patients are generally depriv'd of all Sensation, or, at least, are pretty insensible of Pain; that the Hæmorrhage may, by proper Remedies, be sufficiently seen, or, at least, in a few Hours, stop'd; and that the Lips of the Wound, provided it has been made large enough, may be so drawn from each other, as to afford an Access to the Trepan; it will appear of all other Methods the most proper, to proceed to the Operation immediately after the Denudation of the Cranium.

Nor does the Authority of *Hippocrates* run counter to this Doctrine: He, indeed, after the Incision of the Integuments, with a View to investigate the Wound of the Bone, ordered a farther Examination to be defer'd till next Day; but, as we observ'd just before, *Hippocrates* seems not to have performed the Operation of the Trepan, in order to procure a Discharge to the extravasated Humours, but only with a View to remove the disordered Part of the Cranium; in which Case the Operation may certainly be delay'd longer without so much Danger; but when the ruptur'd Vessels continue to pour out their Contents, unless a free Discharge is given to them, it is to be dreaded lest the Brain should be so compress'd, that the injur'd Functions cannot again be restor'd, tho', by an Application of the Trepan, the extravasated Humours should be evacuated. *Hippocrates*, however, in his Book on Wounds of the Head, after enumerating the Signs, which indicate that a Patient wounded in the Head will die, uses these Words: "If you are sure, that the Patient labours under a Fever, or any other urgent Symptom, the Operation is by no means to be de-

lay'd, but the Bone is either to be cut with a Saw, or rasp'd with a Ruginé to the very Membrane."

The OPERATION of the TREPAN;

From HEISTER.

The Antients us'd Trepanning not only for external Percussions of the Cranium, but also for some internal and obstinate Diseases of the Head; which were incurable by inward Medicines, or the Use of Issues upon the Coronal Sutures, by which means they thought to give a more immediate Vent to the peccant Humours; but the modern Surgeons seldom or never perform this Operation for internal Disorders of the Head; but seldom neglect it in external Percussions, from a Fall, some missile Weapon, Blow, or Bullet; or in some dangerous Contusion, or Collision, where, in any of these Cases, there is a manifest Fracture of the Cranium, or a Suspicion of a Fracture, Fissure, or Collection of extravasated Humours, which can no other Way be discharg'd, and threaten the Death of the Patient.

When you are determin'd to use the Trepan, you are to set about it with all Expedition; but be very cautious and circumspect, and not too hasty, in the Management of that Instrument: For it is extremely difficult, if not impossible, to cut out the least Portion of the Cranium, and to separate it from the Dura Mater, which so closely adheres to it, without injuring that Membrane, tho' you use the greatest Circumspection. Wherefore I think they are highly to blame, to say no worse, who, on almost every Occasion, where the Head receives any violent Percussion, are, without any further Consideration, for having recourse immediately to the Trepan. For I am wholly of the Opinion of *Celsus*, and most Moderns, who advise first to try all manner of Medicines, both internal and external, as Phlebotomy, Purging, Clysters, internal Resolvents, and digestive Aromatic Topics, before you proceed, by a too precipitate Perforation of the Cranium, to hazard, without Necessity, the Life of the Patient.

In the mean time we are to be no less solicitous, on the other hand, lest our Delay should prove the Ruin of the Patient; for as soon as it appears, that the Injury which the Head has receiv'd is of so considerable a Nature, that no Medicines, which Physicians, with their utmost Care and Skill, can prescribe, are of the least Efficacy, but that the Disorder is rather increased, we must with all Speed betake ourselves to the Trepan, in order to elevate or extract the depress'd Parts of the Cranium, and to open a Way for the speedy Discharge of the extravasated Humours; for here, if in any Case, Delays are dangerous.

When the Wound of the Head is bound up, the Apparatus of Instruments, and other Things necessary for the Operation, is to be provided, among which the first and principal is the Trepan or Terebra, with its Crown (*Tab. 36. Fig. 3.*). Some of the Antients us'd a Trepan made in the Shape of a common Carpenter's Gimlet, according to the Figures of *Fabricius ab Aquapendente*, *Andreas a Cruce*, and *Scultetus*, which Instrument they manag'd with one Hand, whence it is usually denominated the *Hand Trepan*. But because it labours under several Defects, which render the Application of it less commodious, we generally use at present the Trepan, or one much like it, represented (*Tab. 36. Fig. 3.*) with a Handle turning round, much like the Instrument us'd by Coopers or Cabinet-makers, which is much more commodious than that of the Antients, especially if the Crown of it be not cylindrical, or of uniform Dimensions, as formerly, but decreasing downwards in the Shape of an inverted Cone, as represented (*Tab. 36. Fig. 3. A.*); by which it is the more easily prevented, after penetrating the Cranium, from descending into the Brain. Some call this kind of Instrument the *Trepan of Hildanus*; but *Celsus*, to say nothing of others more ancient than *Hildanus*, was long ago acquainted with the Use of it, and has describ'd it. The Crown of this Instrument, mark'd A. is join'd to the lower Part of the Handle at B. by a Screw, that it may be taken off at Pleasure, and another Crown, as the Surgeon is supposed to be provided with Crowns of different Sizes, fitted on in its Place. Some of our modern Surgeons have contriv'd the Junction of the Crown and Handle after a different manner, which they fancy to be more commodious; but what has been describ'd is found, by common Experience, convenient enough for all Purposes. When the Crown is furnish'd with a sharp or pyramidal Spike, which sticks out in the Middle, the Instrument is call'd a *Male Trepan* (*Fig. 3. E.*); but if this Spike (*Fig. 4.*) be taken out by the Key (*Fig. 5.*) fitted for this Purpose, it is term'd a *Female Trepan*. *Heister*.

Mr. *Sharp* recommends the *Hand Trepan*, or *Trephine*, which *Heister* condemns as incommodious, and prefers the cylindrical to the conical Crown. As I am not capable of determining which is in the right, I must do Mr. *Sharp* the Justice to let him answer for himself.

The Crown or Saw of the Trepan, as represented by *Sharp*, is cylindrical, differing from those in Use, which are all conical, and some in a very great degree. Surgeons have hitherto con-

ceiv'd

ceiv'd great Advantages to arise from this Form: First, as a Circumstance of the utmost Importance, they have imagin'd there would be Danger of injuring the Brain, by sawing too suddenly thro' the Cranium, if the Enlargement of the Saw did not increase the Obstruction in proportion as they advanc'd towards it, and make the Working of the Instrument exceeding slow. It has also been believ'd, that, unless the Saw was smaller near the Teeth than towards its Basis; it would be impossible to incline it on any Part where it had not made so deep an Impression as in another, in consequence of which one Side of the Circle would be saw'd thro', and the Membranes or Brain injur'd; while, on the other, perhaps the Saw would not have penetrated thro' the first Table of the Cranium. The last remarkable Argument in favour of the conic Saw is, that it more readily admits, and afterwards retains, the saw'd Piece of Bone in its Cavity. But I think all the Advantages attributed to this Figure are imaginary, and the great Labour of working so slowly and difficultly is not only very inconvenient to an Operator, but by no means serviceable to the Operation; for, notwithstanding the Saw be cylindrical, and works without any other Impediment than what lies before the Teeth, yet, even with this Advantage, the Operation goes on so gradually, that, from the Experience I have had, says he, I do not find the least Danger of suddenly passing thro' the Brain, as is apprehended, if we proceed with the Caution of not leaning too hard on the Instrument when the Bone is almost saw'd thro': Indeed with respect to the Impracticableness of inclining it on any particular Part of the Circle when saw'd uneven, which is commonly alleg'd, whoever will try the Experiment will in a Moment discover the Falseness of the Assertion. Besides, the very Instance stated overthrows this Reasoning; for, if the Circle has been already made deeper in one Part than another, it must imply, that we have lean'd with more Force on one Part than another, and, consequently, may at Pleasure do the same thing again. As to the last suppos'd Advantage, of its receiving and retaining the saw'd Piece of Bone in its Cavity, the Benefit would be so frivolous, if it had truly the Preference of the cylindrical one in that respect, that it would not be worth mentioning: But, in fact, the cylindrical Saw receives the Piece of Bone very readily, and will be more likely to hold it in its Cavity than the other, because there will be more Contact between the Edges of the Bone and the Inside of the Saw. *Sharp.*

In the next Place, the Surgeon ought to be provided with an Incision-knife, armed with a blunt or flat Head, (*Tab. 36. Fig. 6.*) which some call the *Lenticular*; and also with an Instrument proper for depressing the Dura Mater, and arm'd like the other (*Fig. 7.*). He must also have in Readiness a perforating Instrument, (*Fig. 8.*) to begin the Operation, which is usually fasten'd to a Handle near the Letter B. (*Fig. 3.*); also a Hair-brush, (*Fig. 9.*) or something like it; a smaller Terebra, (*Tab. 28. Fig. 7. Let. B.*) or another like it; a Lancet; Elevator (*Tab. 28. Fig. 7. Let. C. Fig. 8. and 14.*); a Toothpick made of a Quill; a Probe with a very sharp Point; some Dossils of Lint, and a Vessel with highly rectify'd Spirit of Wine; all which must be plac'd in a large Dish or Plate, in their proper Order, that they may be ready to the Surgeon's Hand, when performing his Operation. The Apparatus of Dressings and Bandage, to be apply'd after the Operation, consists, first, of a Dossil of Lint, of an orbicular Figure, and of the Breadth of a Piece of Money of an ordinary Size; to which, in the Middle, is fasten'd a Thread, a Span long, represented (*Tab. 36. Fig. 11.*). Next must be provided a Ball of Lint, adapted to the Size of the Dossil before-mentioned, and ty'd in like manner with a Thread (*Tab. 36. Fig. 12.*). There must be also in Readiness some orbicular Pledgets of Lint, of various Sizes, for filling up the Wound made in the Cranium (*Tab. 36. Fig. 13.*); besides, some Honey of Roses, Essence of Amber or Mastich, or Spirit of Mastich, scrap'd Lint, a square Compress, and, in the last Place, a good large Napkin, or Piece of Linen, to make the Bandage for the Head; all which Particulars are to be orderly dispos'd in a peculiar Dish, that they may be ready at hand when wanted.

All things being thus rightly dispos'd, we proceed next to the Operation; to perform which with the greater Readiness and Exactness, the Patient must, first of all, be dispos'd in a convenient Room, with the Air well temper'd, in a proper Posture, upon a Chair, or, if he be weak, upon a Couch, in such a manner that the Surgeon and his Assistants may have free Access to him. This done, the Dressings remov'd, and the Cranium cleansed from the Blood, the Patient is to have his Head dispos'd as conveniently as may be, supported by Pillows, and firmly held by an Assistant. The Surgeon then takes the perforating Trepan, (*Tab. 36. Fig. 8.*) and adapting it to the Handle, (*B. Fig. 3.*) instead of the Crown, (*A.*) he turns round the Handle at (*D.*); and having thus made a small Entrance into the Cranium, he then applies the Trepan, with its Male Crown (*Fig. 3. A.*). Upon the Top of the Trepan (*C. C. Fig. 3.*) the Surgeon fixes his Left Hand, upon which he places his Chin or Forehead. It has been generally the Custom hitherto to place the Forehead upon the Left

Hand; but it seems to be a better Practice to apply the Chin, as Mess. *Petit* and *Garengeot* direct, because, in such a Situation, the Surgeon has a better View of the Place he is to perforate, while, with his Right Hand, he slowly and cautiously turns round the Handle (*D. Fig. 3.*) till he perceives, that the serrated Crown, with the Spike in its Centre, have made a sufficient circular Impression upon the Cranium; after which he takes out the Spike, by the Help of the Key, (*Fig. 5.*) and, putting on the Crown again, continues to work with his Right Hand, turning it with all the Circumspection imaginable, and taking care, all the while, by Help of his Brush and Toothpick, to clear the Cranium and Crown of the Trepan from the Saw-dust, till he perceives it to become bloody, which is a Sign, that the Instrument has penetrated to the Diploë, or the middle and medullary Part of the Cranium. But it is to be observ'd, that he will not always meet with this Signification, because, in some Parts of the Cranium, this medullary Substance is not to be found. However, as soon as the Saw-dust comes off bloody, the Instrument is taken off; and, the Blood being first deterg'd with a Sponge dipt in Spirit of Wine, the Surgeon enters the small Terebra (*Tab. 28. Fig. 7. B.*) into the little Hole or Aperture first made in the Middle, and, after a few Turns, takes it out again; and then putting on the Crown once more, turns it two or three times about, but very gently. The Saw-dust is again cleans'd, and the Surgeon, with a slender Probe or Toothpick, carefully searches whether the Cranium be sufficiently perforated, which cannot be better known than by heedfully attending to the Colour of the circular Groove or Trench; for when the Bottom of it, which before was white, appears of a bluish or grey Colour, it is a Sign, that the Dura Mater appears thro' the Cranium, which, of consequence, is nearly penetrated. In this nice Juncture, therefore, the Trepan must be manag'd with the greatest Circumspection, lest the serrated Instrument should happen to lacerate the Dura Mater, so closely annexed, or growing to the Bone, the Consequence of which might be a violent Inflammation, or some other fatal Symptom. But if the circular Groove appears black only in some Parts, it is a Sign, that the Cranium has not been equally saw'd, and therefore the Crown must be a little inclin'd, and press'd upon the whitish Parts, where it has not cut deep enough, and be very gently turn'd about, till the round Piece of Bone, which is to be cut out, becomes loose or moveable. In that Case it will not be convenient to cut quite thro' the Cranium with the Teeth of the Crown, for fear of wounding the Dura Mater, but rather to screw in the Terebra (*Tab. 28. Fig. 7. B.*) again into the Aperture wherein the Pin had been inserted, and with the same cautiously move the Bone this way and that way; or with the Help of the Elevator it may be taken out.

Having thus extracted the round Piece of Cranium, the Blood effus'd underneath usually follows it; which being deterg'd, the Surgeon's next Business is carefully to examine whether there be any loose Fragments of Bones to be extracted, or depress'd Parts to be rais'd: If so, he must set about it immediately; if not, he must apply himself to the Smoothing the Roughness of the inner Margin of the Aperture with the Lenticular, (*Tab. 36. Fig. 6.*) to secure the Dura Mater from being prick'd or injur'd by any of the sharp Points. This done, the Blood, if there be any within, will the more readily discharge itself; but, to promote its Exit, it will be very convenient gently to move the Patient's Head from Side to Side, and with the before-mention'd Lenticular, or the Depressor, (*Fig. 7.*) in a very tender and cautious Manner, to depress the Dura Mater. While the Surgeon is thus employ'd in freeing the Brain from the Weight of the incumbent Blood, or the Pressure of the Bone, the Patient often recovers his Senses, either suddenly or by degrees, like one roused from a deep Sleep. When the Patient is thus come to himself, and yet the Blood is, in some measure, retain'd, some advise the Application of a Sternutatory now-and-then to the Nostrils; for, say they, not only holding the Breath, but especially Sneezing, expels the extravasated Blood, when not free to discharge itself, with a kind of Violence; but this is a very dubious Remedy.

If, after the Operation, the Dura Mater appears black, or elevated as tho' it were ready to break thro' the Aperture of the Cranium, it is a Sign, that Blood or Pus are retain'd underneath it. In this Case, the only Remedy, tho' it be a doubtful one, is to perforate the Dura Mater, and the Pia Mater too, if the peccant Matter lies so deep, with a Lancet or Incision-knife; carefully avoiding the larger Veins, since the Blood or Matter can no way else be discharg'd, and their Retention must be very fatal to the Patient. Some condemn all Perforation of the Dura and Pia Mater as absolutely destructive; but, besides my own Experience, we are assured, by the Authorities of *Paré*, *Glandorp*, *Coiter*, *Fallopian*, *Marchetti*, *Roubaud*, *Blancard*, and other Writers of good Credit, that these Membranes have been frequently perforated without Danger of Death, especially if you avoid cutting any of the larger Veins or Arteries. If any Fragments of Bones, which press upon the Brain, happen to appear, they must be very carefully extracted either with the

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Fingers or the Forceps; or, if they are only depress'd, they must be rais'd with the Fingers or the Elevator, and restor'd to their former natural Situation. If a Splinter be lodged between the Dura Mater and the Cranium, so that you cannot conveniently extract it by the first Aperture, a second or third Perforation must be made with the Trepan, till you have removed every thing that may be injurious to the Brain. Sometimes it will be necessary to cut off the Parts of the Bones between the Perforations, if they are hard and strong, with a small Saw, (*Tab. 28. Fig. 9.*) or a very sharp Forceps, or with a Mallet and Chisel, represented in the same Plate (*Fig. 10. and 11.*); or, if these intermediate Parts are but thin and weak, they may be cut off and removed by the Lenticular, (*Tab. 36. Fig. 6.*) in order to the extracting of the offensive Splinters or Fragments. When there is a long Fissure in the Cranium it will be proper to trepan at each Extremity; but when the Fissure runs in several Directions, you must trepan upon each, because every one of them has usually some extravasated Blood or Pus lodged under it.

Having described the Method of perforating the Cranium by the Trepan, and of discharging the Blood, Matter, and bony Fragments, we now proceed to the Dressings and Bandage, which are perform'd in the following manner: First of all a round Pledget of dry Lint (*Tab. 36. Fig. 11.*) is to be laid next the Dura Mater, with a Thread fasten'd to it, and hanging out of the Aperture; it must be dry, that it may the more conveniently be placed under the Cranium. On this Pledget must be poured Honey of Roses, diluted with a little Spirit of Wine. Many advise an Application of Spirits or Essences of Mastich, Amber, and the like, which, in my Opinion, are too acrimonious, because they often put the Patient to great Pain. Upon this Pledget then you apply a Ball of Lint, furnish'd also with a String, (*Fig. 12.*) and upon that lay round Dossils of Lint, (*Fig. 13.*) till the Cavity be filled. In the next Place, the Cranium, and external Wound, must be dress'd with Lint spread with some mild digestive Ointment, or Honey of Roses; upon which add a square Compress, dipt in warm Spirit of Wine, or Lime-water, and camphorated Spirit of Wine; but use no Plaisters, as being unnecessary on this Occasion; and the Whole must be secured with the Head-bandage.

In the subsequent Dressings, which must be repeated once or twice every Day, you must strictly avoid fat and oily Applications, which will corrupt the Bones and Membranes. Instead of such you must use balsamic Topics, particularly Honey of Roses, with a little Spirit of Wine, or Essence of Mastich, which are excellent Remedies. The Wound being thus duly dress'd and attended, there will be a spontaneous Exfoliation of a thin Lamina from the Margin of the bony Aperture, usually within forty or fifty Days, which ought not to be pulled away by Force. Your Exfoliation being obtained, new Flesh will appear shooting up from the clean Bone and Dura Mater, which at length will fill up the whole Cavity. When you find the Cavity about half filled, the new Flesh is to be moderately compressed by Lint, and a proper Bandage, to prevent it from becoming too lax and spongy; and when it is grown up even with the Surface of the Bone, you must endeavour to extend over it, and unite the Edges of the external Skin, in order to its Coalition with the new-formed Mass, which, having filled up the Cavity, becomes gradually more and more indurated; but in such a manner, as even at last to be rather a Cartilage than a Bone; for upon boiling the Cranium it separates and falls off. And this seems to be the Reason why those who have undergone trepanning are not only sensible of a remarkable Weakness or Pain of the Head, but are much affected with the various Changes of the Weather; which Inconveniencies may, in some measure, be remedy'd by keeping the Place cover'd with a Lead or Silver Plate.

It sometimes happens, that, after the Operation, a Vein opens, and bleeds profusely; in which Case you must sprinkle Powder of *Armenian Bole*, *Sanguis Draconis*, *Frankincense*, and *Colophony*, upon the Place, and compress it for some time with Lint. If the Brain or Dura Mater should be seized with an Inflammation, you must endeavour to remedy it by internal resolving and cooling Medicines, together with Abstinence and Phlebotomy; or, as *Roubault* advises, by Scarification of the Dura Mater, and the Application of common Malt Spirit impregnated with Saffron, and lower'd with Elder-flower Water. If there should happen a Suppuration or Exulceration, the Surgeon's Business is first to wipe off the Sordes with Lint, and then to apply to the Part affected Honey of Roses, mixed with Spirit of Wine, or Essence of Mastich or Amber, or Elixir Proprietatis, or a Powder prepared of Myrrh, Mastich, and Frankincense. When the Patient, after being once trepanned, feels great Uneasiness, with a Weight in the Head, it signifies that something preternatural still infects the Place; and that the Trepan must again be applied. If any spongy or fungous Excrescence shoot forth from the Wound of the Cranium, it must be repressed by some of the following Methods: First by applying a Dossil of Lint dipt in Spirit of Wine or Mastich at every Dressing, and strongly depressing the same upon the growing Flesh; or, in the next Place, by Application of the round perforated Piece of Lead, contriv'd by *Bellotte*, (*Tab. 36. Fig. 14.*) and furnish'd with *Anse*, (see *Fig. 15.*) which is to be depressed into the Aperture of the Cranium, and well cover'd with round Pledgets of Lint; but you will seldom have Occasion for this Instrument, if the first Method be rightly observed: Or, lastly, if the fungous Excrescence be already prominent above the Aperture, it may be cut off either by tying it round with a Thread, or by the Scissars, as it is practis'd in Tubercles. What is left of it may be repressed by rubbing it with blue Vitriol, or sprinkling on it the Powder of Savin or burnt Alum, and afterwards compressing it with a tighter Bandage, and strongly compacted Dossils of Lint; by which means not only the spongy Flesh will be check'd and reduced, but the Wound also will be the more speedily healed. *Heister*.

As this Operation is one of the most important in Surgery, I shall add the Method of performing it, recommended by *Sharp*. The Manner of Trepanning is this: Having fix'd your Patient's Head steady, either on the Bolster of a Bed, or by placing him in a low Chair, with the Pin of your Saw mark the Centre of the Piece of Bone to be taken out; then with the perforating Trepan make an Orifice deep enough to receive the Pin, which, being fixed in it, will prevent the Saw from slipping; and thus you are to continue sawing till the Impression made will preserve the Steadiness without the Pin, when it is to be taken away for fear of its wounding the Brain before the Saw has entered through the Cranium, which it would do at last, because of its Projection. In working through the Bone, the Teeth of the Saw will begin to clog by the time you arrive at the Diploë: Wherefore a Brush must be ready to clean it every now-and-then; and with a pointed Probe you must clear away the Dust in the Circle of the trepan'd Bone, observing if it be deeper on one Side than the other, to lean afterwards on that Side where the Impression is least, that the whole Thickness may be saw'd thro' at the same time. To do all this with less Interruption it will be proper to have two Saws of exactly the same Diameter, that an Assistant may be brushing one while you operate with the other. We are advis'd to saw boldly till we come to the Diploë, which, it is said, will always distinguish itself by the Bloodiness; but, however, this is not a certain Mark to go by; for though where there is a Diploë, it will manifest itself by its Bloodiness, yet sometimes the Skull is so very thin as not to admit of any; in which Case, if an Operator should push on his Instrument in Expectation of meeting with this Substance, he would unwarily wound the Brain. This is not very often the Case, but however often enough to put a Man on his Guard, and make him enquire whether the Bone be loose after a little sawing; which is the only Rule we go by, when we have pass'd through the Diploë; and may as well be attended to before coming at it, without any considerable Loss of Time. When it is quite saw'd through, and lies loose, it may be taken away with the Forceps contriv'd for that Use (*Tab. 60. Fig. 1.*); and if the lower Edges of the Orifice next to the Dura Mater are splinter'd, they may be scrap'd smooth with a Lenticular.

This is the chief of the Operation of the Trepan; the only thing remaining to be done is with an Elevator introduc'd at the Orifice, to raise the Depression or broken Splinters, if they cannot otherwise be laid hold of, and to draw out the grumous Blood, or any other extraneous Body. If the Dura Mater be not wounded or tore, an Incision must be made through it to give way to the Blood or Matter, which almost certainly lies underneath it, if the Symptoms have been bad, and none has been discharg'd from between the Cranium and Dura Mater.

I have used the Word Trepan all along, says *Sharp*, for the sake of being better understood; but the Instrument he recommends is a Trephine, the Advantages of which, as also that of a cylindrical Saw, are above described in the Quotation from *Sharp*.

With regard to the Dressings of these Wounds, I think, says *Sharp*, it is very certain, that, as the greatest Part of the Evil proceeds from the Quantity and Pressure of the Matter, whatever approaches towards the Nature of a Tent, and increases its Quantity and Pressure by locking it up, must be pernicious. I would therefore exclude the Use of all Syndons whatever; the hasty Application too of Spirits of Wine, which is so commonly advis'd, cannot be proper, as they are not only unfit for Inflammations in general, but also crisp up the Vessels of the Dura Mater and Brain; and stopping the Suppuration, sometimes produce a Gangrene. Since then a close Application is inconvenient, and whatever Good there may be in topical Medicines, it cannot, for the most part, be communicated to the Abscess, by reason of its Extent beyond the Orifice; the best Remedy will be dry Lint only, which must be laid on loosely to give Vent to the Matter, and be repeated twice a Day, till the Discharge is lessen'd, when once in twenty-four Hours will be sufficient to the finishing of the Cure, which will be something retarded by the Exfoliations that sometimes follow this Operation. The Patient afterwards may wear a Plate of Tin upon the Scar, to defend it from Blows, or any accidental Injury. *Sharp*.

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Treatment of the Accidents subsequent to the Operations of the Trepan, from Boerhaave.

The Inflammation, Suppuration, Gangrene, or Fungus of the Membranes, or even of the cortical Substance of the Brain itself, which will sometimes arise, are remov'd by Remedies which are proper for the respective Disorders, by the Application of Antiphlogistics, Detergents, and Antiseptics; by a Thread, and a Plate of Lead.

It now remains, that we consider those Symptoms which are sometimes subsequent to the Operation of the Trepan, and which are often accompanied with the greatest Danger: For since after the Bone is taken away, in consequence of the Fullness of the Cranium, the contain'd Brain, together with the Dura Mater, arise through the Perforation made, unless this Accident be prevented, the Dura Mater will be pressed against the Margins of the Bone; by which means a free Circulation of the Blood thro' its Vessels will be obstructed, and an Inflammation, with all its subsequent Symptoms, especially a Suppuration and Gangrene will be produc'd. The unaccustom'd Access of the Air, especially if cold, contributes very considerably to this Misfortune. The same Accident may happen in the Vessels of the Pia Mater, and in the cortical Substance of the Brain, by which means all its Functions may be injur'd. By the general Method of Cure in Inflammations, of which we shall speak under its proper Article, the present Disorder may be remov'd; but it is always safer to prevent it before it appears. Liberal Venesection, Epispastics applied to the Soles of the Feet, Lenitive Clysters, a spare Diet, and liberal Draughts of Whey, or Milk and Water, will reduce the Body to a State not in the least subject to Inflammation. These Remedies will also be able to remove the Inflammation after it is brought on, and may be boldly repeated, if the Symptoms are urgent; for in this Case it is not to be doubted, but a Suppuration is highly dangerous, and a Gangrene generally mortal. Hence these bad Consequences of an Inflammation are with the greatest Care and Skill to be prevented.

A common, but, at the same time, a very terrible Symptom, generally ensues the Operation of the Trepan; which is a fungous, and suddenly increas'd, Dilatation of the Brain. This, indeed, rarely or never happens, so long as the Dura Mater is entire. But when this Membrane is cut or corroded, the Pia Mater is so slender, that it is not able to restrain the rising Substance of the Brain, which will still sooner protuberate, if at the same time the Pia Mater is wounded. These Protuberances, on account of the Quickness of their Growth, and their Figure, are call'd Funguses, as we have before observ'd. *Celsus* seems to have taken Notice of this Accident, but he believ'd that it was a Swelling of the Dura Mater: For, says he, "After the Cranium is laid open, and the Dura Mater expos'd to View, if that Membrane is inflam'd and tumid, tepid Oil of Roses is to be pour'd into the Wound. But if it is so tumid as to protuberate without the Bone, it must be restrain'd by well triturated Lentils, or the Leaves of the Vine triturated, and mixed up with fresh Butter; or the Fat of a Goose." But it seems to be confirm'd by all the Observations hitherto made, that these Funguses are produc'd by the pulpos cortical Substance of the Brain, when divested of its surrounding Membranes, and the bony Covering of the Cranium, immensely dilated by the Fluids driven to it by the Arteries; and more especially when a Fever has increased the Velocity of the Circulation. But since the cortical Substance of the Brain naturally contains no red Blood, hence these Funguses, when cut or corroded, rarely discharge any Blood, unless by a violent Dilatation the Diameters of these small Vessels should happen to be so enlarg'd, as to admit the red Blood. Though this, indeed, rarely happens, yet there are some Instances of its having occur'd: Thus, in that surprising Case we have before related, such a fungous Mass arising thro' the fractured Cranium, had a strong Pulsation in its Arteries; and when rudely handled, discharg'd a large Quantity of Blood: For this Reason these Funguses generally subside before the Death of the Patient, in consequence of the Force of the Circulation being impair'd, as was observ'd in the same Case some Days before the Boy's Death; for the Fungus, which was as large as a Walnut, of a cineritious Colour, and without Pain, spontaneously subsided, and a large Chasm, in the Substance of the Brain itself, appear'd. *Scultetus*, in *Armament. Chirurg. Observat.* 19. gives us an Account of a Man, who, receiving a Wound in the Head with a Hanger, had a pretty large and wide Fissure made in the Cranium, with two Funguses arising out of it. But when, after the Patient's Death, he was inspecting the Wound, he found that the Funguses had subsided very much. All these Circumstances prove, that these Funguses arise from the Dilatation of the cortical Substance of the Brain, by the Humours driven to it.

We now come to inquire what is to be done in such a Case. Where such a Fungus protuberates it cannot be repress'd; since by that means the Brain would be compress'd, and the pulpos small Vessels, of which the Fungus consists, would be destroy'd

by a very gentle Pressure; from which Circumstance a violent Putrefaction, and the most terrible Symptoms, would arise. On the contrary, to cut off or corrode the Substance of the Brain itself, may possibly seem an Attempt attended with too much Danger. Numberless Observations, however, inform us, that such Funguses have been cut off, whilst the Lives of the Patients were not only saved, but also all the Functions of the Brain preserv'd entire. Thus *Hildanus*, in *Observat. Chirurg. Centur.* 4. *Observ.* 3. gives us an Account of a Boy of fourteen Years of Age, thro' whose Cranium, after the Application of the Trepan, such a Fungus arose. It was cut off by the Application of a Thread about it; but another of the same Kind arose, and was cut off in the same manner. When this Method had been follow'd for several times, it appeared that a Quantity of the Brain, as large as one's Fist, had been lost. The Patient, however, recover'd, though, in consequence of his Poverty, he eat any thing that came in his Way, and had his Wound but indifferently taken care of by the Women who had the Charge of him in the Surgeon's Absence. In the first Century of the same Work, *Observ.* 15. we have an Account of a Boy of the same Age, who, by a Stroke from a Stone, which fell from a considerable Height on the Right Side of his Head, had a large Fracture made in his Cranium, when, after extracting several Splinters of the Cranium, every thing seem'd to have a good Appearance; and when that Part of the Dura Mater, which had been lacerated by the Splinters, was separated, on the twenty-first Day there arose from the Wound a Fungus, which, in the Space of twenty-four Hours, appear'd as large as a Hen's Egg, without the Cranium. By sprinkling it, however, with drying aromatic Powders, and applying a Plaister made of the like Ingredients, the Fungus entirely subsided in the Space of fourteen Days, and the Patient was afterwards thoroughly cur'd. More Instances occur in the same Author, by which we are taught, that such Funguses may safely be remov'd. But to attempt the Removal of these Excrescences by acrid Medicines seems dangerous. And in the same Place *Hildanus* gives us an Account of a Surgeon, who despising the Advice of another, who had more Skill than himself, sprinkled the Powder of Vitriol and burnt Alum upon such a Fungus; which Practice was immediately succeeded by a violent Pain, an acute Fever, an Inflammation, a Delirium; and a few Days after Death ensued.

If we consider that wonderful Apparatus, by which the Arteries distributed to the Brain every-where communicate with each other, after they have enter'd the Cranium; and if at the same time we consider, that as anatomical Injections have taught us, the Arteries of the Pia Mater are every-where united to each other by Anastomoses; and that from Analogy it is highly probable, the same obtains in the last villous Vessels of the cortical Substance of the Brain; the Reason will be obvious, why 'tis possible, that when a large Portion of the cortical Substance of the Brain is remov'd, the Functions of the Brain may still remain entire. 'Tis also to be observed, that tho' the cortical Substance of the Brain is but of a small Bulk, yet, when freed from the Integuments which confine it, it may easily be extended to an immense Largeness, as it consists of Vessels so tender, and so easily dilatable.

It seems then of all other Methods the most proper, to cut off large Funguses with a Thread apply'd near the Orifice of the Cranium, where they are always smallest; and to keep down smaller ones by drying Medicines, which Intention seems to be excellently answer'd by Spirit of Wine digested with Mastich or Olibanum; or the Powder of Mastich, or of Sarcocolla, may be also sprinkled upon the Fungus.

But though the Fungus is removed, yet it soon rises again, as we are taught by numberless Instances, unless such an equal Pressure is restored, as may prevent the excessive Distention of the luxuriant Vessels; and unless the Velocity and Force of the Circulation are at the same time so moderate, that the easily dilated Vessels may not be too much distended. The former of these Intentions is answer'd by filling the Hole of the Cranium with Lint, or by applying a Leaden Plate, and with proper Bandage securing it so, that it shall remain in the intended Situation. The latter Intention is answer'd by Venesection, in order to diminish the Quantity of the distending Liquid; by Ease of Body and Mind; by diluent antiphlogistic Liquors, copiously drank; by mild and attenuating Aliments; and by gentle Anodynes, the excessive Velocity of the Circulation may be quell'd. And Clysters made of the like Ingredients, Fomentations apply'd to the inferior Parts, and Epispastics, will derive the Impetus of the Blood to the inferior Parts.

From the Whole of this History of Wounds of the Head, as also from what is said concerning Wounds in general, it is sufficiently obvious, that slight Wounds of the Head have often prov'd mortal; and on the contrary, that very severe Wounds, not only of the Cranium, but also of the Brain itself, have sometimes been happily cur'd, without any Abolition or Injury of the Functions. Various Observations have been related from the best Authors, which confirm this. Hence it seems

seems reasonable to lay it down as a Maxim, That no Wound of the Head, however slight it may appear to be, is to be treated in a superficial and careless Manner; and that we ought not to despair, in the most terrible and apparently dangerous Cases.

The Malignity of Wounds of the Head is estimated;

First, By their Situation. Thus a Wound in the Occiput, Vertex, Parietal Bones, or upon the Sutures, are the worst of all.

A Wound in the Occiput is highly dangerous, because here very strong Muscles are inserted into the Cranium: The Cerebellum, on which Life totally depends, is shut up here. Large transverse Sinuses also occur in this Part. Blood, discharg'd from ruptur'd Vessels, is hence evacuated with the greatest Difficulty; and if extravasated Humours are lodg'd under the expanded Veil of the *Dura Mater*, which covers the Cerebellum, and defends it from the Pressure of the incumbent Brain, their Evacuation seems to be entirely impracticable.

Wounds in the Vertex are also highly dangerous, since that Part of the Cranium is, of all others, the slowest in acquiring a bony Hardness. In Children this Part, which is call'd the Fontanella, remains long of a membranaceous Texture. Here the Falctiform Process of the *Dura Mater* adheres pretty strongly, and the longitudinal Sinus lies under it: Hence it is sufficiently obvious, that Wounds, inflicted on this Part, must be accompany'd with great Danger.

Wounds of the Parietal Bones must also be highly dangerous, because generally the *Ossa Bregmatis*, especially about their Middle, are found to be very slender; and the Furrows, impress'd upon these Bones, inform us, that considerably large Arteries of the *Dura Mater* are situated in this Place. Besides, these Bones of the Head are generally only cover'd with the common Integuments. Hence *Hippocrates*, in the third Section of his *Treatise on Wounds of the Head*, concluded Wounds inflicted on this Part to be highly dangerous; because the Bone is weak, cover'd with little Flesh, and has a large Quantity of the Brain lying under it.

Wounds on the Sutures are also dangerous, because, where these occur, the Pericranium seems to be united with the *Dura Mater*; and since, in these Parts, the *Dura Mater* adheres strongly to the Cranium. Hence the Disorders arising in the external Parts may, in consequence of the Continuity of Substance, be easily propagated to those which are internal. When, in consequence of the Operation of the Trepan, the extravasated Humours are to be evacuated, the Trepan, in this Case, ought never to be apply'd to the Sutures themselves; and, when the extravasated Blood is lodg'd between the Cranium and *Dura Mater*, it is always dubious on which Side of the Suture the Trepan ought to be apply'd; since the *Dura Mater*, adhering firmly to the Sutures, may place the extravasated Fluids, as it were, in separate and distinct Cells, as we have already observed.

Secondly, By the Symptoms. As a Fever, appearing after the seventh Day, attended with Coldness and Tremors; a Paleness, Dryness, and Lividness of the Wound; an Asperity or Yellowness of the Bone; a Hemiplegia, or Convulsions.

The Symptoms, subsequent to the Infliction of a Wound, inform us, what Functions are injur'd, and what Degrees of Danger are to be dreaded: The more numerous, therefore, and the more severe these are, the Danger must be proportionably the greater. But we before observed, that violent Symptoms, appearing immediately after the Reception of the Wound, were often less formidable than those which appear some Days after; and this Observation was confirm'd by the Authority of *Hippocrates*. A Fever arising on the seventh Day, after the Infliction of the Wound, was always look'd upon as an unlucky Prognostic, since it almost always portends a new Inflammation or Suppuration, which, in this Case, are so much to be dreaded. And *Hippocrates*, in the thirty-first Section of his Book on *Wounds of the Head*, pronounces this Fever to be a Sign, that the Cranium is corrupted, and that the Cure of the Patient has been neglected. But when the red Colour of the Wound is chang'd, and becomes pale or livid; as also when the Lips of the Wound become dry, and appear like wither'd Flesh, or that which has lain long in Salt; these Signs denote, that the Parts have a Tendency to a Mortification and Corruption, as we have already observed. But since the Cranium is naturally smooth, and of a whitish Red, or somewhat bluish Colour, its Roughness, and the Change of its Colour into Yellow or Brown, teach us, that it is corrupted; and that the Part thus affected must be separated, either by Nature or Art, as we have already more fully explain'd. But Hemiplexia and Convulsions inform us, that the Brain itself is affected, whether it is compress'd by the depress'd Cranium, as has been already observed; or whether it is injur'd by the Pressure or Corruption of the Humours, extravasated under the Cranium;

or whether, by the Force only of a powerful Concussion, without any considerable Extravasation of Humours, the tender Fabric of the Brain is remarkably chang'd or destroy'd; as we have already taken Notice.

Thirdly, By the Age of the Patient.

In young Persons the Bones easily yield, and are less capable of resisting wounding Instruments. In Adults they are more firm; and in old Men the Bones are, indeed, hard, but, at the same time, very brittle. Besides, in a youthful State, all the Bones are of a more vascular Texture, and, for that Reason, abound more with Moisture; whereas, in a more advanced Age, many Vessels are obliterated, as *Hippocrates* has justly observed, in the twenty-ninth Section of his *Treatise on Wounds of the Head*. "The Bones, says he, of Children are more thin and soft, because they abound more in Blood, &c: Hence, by the same or a slighter Wound, the Bone of a Child will become more and sooner purulent, than the Bone of an Adult. And, if both Patients are to die of the Wound, the young Person will be cut off sooner than the Adult." The whole nervous System is, in young People, easily put in Motion; for which Reason they easily become convulsed by very slight Causes; so that, at this Age, Wounds of the Head are so much the more dangerous: But, in old Persons, the Separation of the affected Bone, and the Regeneration of that which is lost, are always observed to be more difficult; because, at this Age, the Number of vital Vessels in the Substance of the Bone is smaller; and it often happens, in a very advanced Age, that the Diploe, which is almost entirely vascular, is totally obliterated.

Fourthly, By the Constitution of the Patient.

The Constitution of a Patient may be consider'd in two different Lights, either as sound, or morbid; for the Health of every individual Man is peculiar to himself, and can be said to be Health, with respect to his Body alone, since we observe, that different Bodies are still healthful, tho' the Compages of their Solids, and the Qualities of their Fluids, differ very widely. This is what is meant by Soundness of the Constitution, which the Antients divided into hot and cold, moist and dry. It is sufficiently obvious, that, in consequence of this, there must be a considerable Difference betwixt the Wounds of different Persons, especially those inflicted on the Head; for, in Men of hot and bilious Constitutions, a stronger Inflammation, and a greater Degeneracy of the extravasated Humours, are to be expected; whereas in Men of cold, mucous, weak Constitutions, the contrary obtains. But a morbid Constitution is known from the predominant Cacochymy; and, in Wounds of the Head, that morbid Constitution is worst, which generally affects and corrupts the Bones; such as a scorbutic, rickety, or venereal Habit, for Instance.

Fifthly, By the Season of the Year.

Excessive Heat, and its ungrateful Opposite, pinching Cold, are always injurious to Wounds of the Head; but the genial Spring is, of all other Seasons, most friendly to them. *Hippocrates*, however, in the fourth Section of his Book on *Wounds of the Head*, condemns the scorching Heats of the Summer, as more noxious than the nipping Colds of the Winter: "For," says he, if any one has receiv'd such a Wound as will prove mortal in any Part of the Head, he will live longer under it in the Winter than in the Summer." And, in the thirty-first Section of the same Book, after having recounted the Signs by which it is known, that a Patient wounded in the Head will die, he says, "In the Summer they die before the seventh Day, and in the Winter before the fourteenth." It is also much easier to correct an intense Cold, by kindling a Fire, than to render an excessive Heat moderate. Perhaps, for this Reason, in the warmer Climates, Wounds of the Head have been observed to be more difficultly cured than in colder Countries: Thus, in Italy, *Ludovicus Duretus* informs us, that this actually happens; but we have already assign'd another Reason for this Phenomenon.

Sixthly, By the Malignity and Impurity of the circumambient Air.

We have already observed, that the free Access of the Air, especially when cold, was noxious to Wounds of the Head: And, in the Article *VULNUS*, it is demonstrated, that a pure Air, often renew'd, and free from putrid Exhalations, is highly advantageous to all Wounds in general: Hence, after Battles, which are generally fought in the Summer, whilst a large Multitude of the Wounded are laid in the Hospitals, the Air is fill'd with so many putrid Exhalations, that many die, especially those who are wounded in the Head. Hence that skillful Surgeon *Belliste*, among the several Advantages attending his Method of making small Perforations in the Cranium, which we have already describ'd, esteems this one of the most considerable; that the Patients are, by this means, much sooner cured than they would otherwise be, and consequently are not oblig'd

to languish long in the Hospitals; where, 'tis obvious, from numberless Instances, that the soundest Constitutions are considerably affected by the malignant Exhalations: And he affirms, that he has an hundred times seen those Patients who were already cured, and thinking of their Departure, seiz'd with putrid Fevers, Hemorrhages, and Diarrhoeas, which cut them off.

I must apprise the Reader, that nothing I have ever met with gives a greater Insight into the Nature of Diseases of the Head, from an internal Cause, than a Knowledge of what happens in Disorders of the same Part, from an external Cause: The preceding Treatise on the Head will, therefore, be of much Importance in Physic, as well as in Surgery.

CAPUTPURGIA. A barbarous Word used by some Physicians to signify such external Remedies as purge the Head, which are either *Sternutatories*, by *Galen*, *S. M. F. l. 5. c. 20.* call'd *ἐρρηγνῆς*, "*Errhines*;" or *Masticatories*, which he calls *ἀποφλεγματοῖς*, "*Apophlegmatifms*." See *ERRHINA*, and *APOPHLEGMATISMUS*.

CAPUPEBA, *Brasilensibus*, *Gramen decetylon plumeum*, *Lusitanis Pes Gallinaceus dictum*. A sort of Grass in *Brasil*, two or three Foot high, with a round smooth Stalk, jointed, and with Leaves, at the Joints, above half a Foot long. At the Top the Stalk is branch'd into twenty, twenty-four, and sometimes thirty lesser ones; each of which, towards the Top, is cover'd with a Silver-colour'd Pinacle, three or four Fingers Breadth in Length, containing a grassy Seed. The Stalks are of a fine reddish Colour.

The Natives commend the Root, drank in any convenient Liquor, against Poison. *Raii Hist. Plant.*

CARA *Brasilensibus*, *Inhame de S. Thome*, *Congensibus Quiquouqui Conger*, *Margg.* *Iguame five Inhame Lusitanorum*, *Clus.* *Popum Brasilianum five Americanum alterum*, *C. B.*

It is a Species of *Convolvulus*, with a square Stalk, pennated at the Angles, green, but here-and-there reddish, and a little contorted. It creeps a long Way upon the Ground, and propagates itself so vastly, that one single Plant will easily fill up a Plot of a hundred and twenty Feet square; for the Stalk and Branches, as they here-and-there touch the Ground, take Root; and, even when they cannot touch the Ground, shoot forth Fibres for Roots; but these, for want of due Nourishment, cannot grow to a just Bigness. The Leaves are like those of our *Sagittalis*: The Stalk, when cut, sheds Plenty of a Liquor like the Tears of a Vine: The Root is above a Foot in Thickness, and eight, nine, twelve, or more Fingers Breadth in Length, cover'd with a thin Skin of a dusky Ash-colour, under which it is yellowish. The Substance is white, juicy, and, as it were, milky, and not ungrateful to the Taste. [According to *Clusius*, the Roots are cover'd with a rugged and uneven Rind, like the Roots of the true long *Aristolochia*, and shoot forth many small Fibres.] Boil'd with Butter, or season'd with Oil and Pepper, it is of a good Taste, but dry and mealy, whence it serves the Inhabitants of *Guiney* for Bread. *Margg.*

Clusius mentions another Species, which has a rough Rind, set with prickly Tubercles, which they call *Nam Peru*. *Marggrave* also speaks of another Species, call'd, by the *Brasilians*, *Carainambi*, which has a Stalk that creeps a long Way, with solitary Leaves, set at Distances, of which some are of the Figure of a Heart, others have Lobes: The Root is white. *Raii Hist. Plant.*

CARAB. A *Pod.* *Johnson.*

CARABE, *Succinum*, *Offic.* *Succinum*, *Worm.* 31. *Chart. Foss.* 14. *Roet.* 321. *Calceol. Mus.* 180. *Aldrov. Mus.* *Metall.* 403. *Mer. Pm.* 219. *Gæbal.* 10. **AMBER.** See *AMBRA*.

CARABUREA, *καρυβυρία*, in *Myrsus*, *Antidot.* 304. as *Fuchsius* says, is a corrupt Word, of which he knows not the Meaning, unless it be a Species of *Carui*, which the modern *Spaniards* call *Caroneia* and *Caraneia*.

CARABUS, *καρῆβος*, sometimes signifies an Insect which lives in dry Wood, and belongs to the Genus of *Scarabæi*. Sometimes is taken for the *Gammarus* or *Astacus*, and sometimes for the *Locusta marina*, which see. *Castellus.* *Rieger.*

CARACALLA. The Name of the *Phaseolus Americanus perennis*, *flore cochleato odorato*, *feminibus fuscis orbiculatis*.

CARACOSMOS. A Name for the *Oxygala equinum*, or four Mare's Milk; accounted, by the great Men among the *Tartars*, a delicious Food. *Castellus.*

CARAGUATA, *Margg.* is the Aloe of *Brasil*. Some, in their Account of the *Indies*, have written, that Ambergrise is the concreted Juice of some sort of *Caraguata*, *Manguey*, or *Alth*, growing in great Plenty among the Rocks, which, being torn away by the Violence of the Waves, is toss'd from Place to Place, and at last coagulated: Sometimes there are formed great Lumps by the Concurrence of smaller ones.

Thus *Ray*, from *Dr. Tancered Robinson*, who adds, that *Dr. Tiapham* observed the Leaves of this succulent Plant to be turgid with a kind of viscous, thick, and bituminous Matter, very like Ambergrise. See *AMBRA*.

CARAGUATA, *secunda*, *Margg.* differs little from the former.

CARAGUATA, *guacu*, *Margg.* is a larger Species than the two preceding. Of the Leaves of this Plant may be made very good Cloth, or better than Linen. The white Filaments of the Substance of the conic Corpuscles, before they open into Flowers, may be drawn out like Cotton. The Root, or the fresh Leaves, bruised and thrown into the Water, render Fishes so senseless, that they immediately rise to the Surface, and may be taken up with the Hand. The dried Wood burns like a Rope dawb'd with Sulphur; and Fire may be got out of it, by the Attrition of a hard Piece of Wood.

CARAGUATA, *acanga*, *Margg.* bears a Fruit five Fingers Breadth in Length, which may be eaten.

This Plant, says *Ray*, seems to be very much of the Nature of the *Mexocot* or *Maguel* of *F. Hernandez*, so that it may be doubted whether they are the same. However, it does by no means belong to this Genus; but, because of the Similitude of its Leaves, we have suffer'd it to keep its Place, till we shall more certainly know under what Head it ought to be disposed. *Raii Hist. Plant.*

CARAMBOLAS, *Malus Indica*, *Pomo anguloso Carambolas dicta*, *Tamara tonga*, *feu Carambolas*, *H. M.* *Carambolas*, *Park.* *Carambolas Acosta*, *J. B.* *Mala Goensia*, *Fructu octangulari*, *Pomi vulgaris magnitudine*, *C. B.* *Erroneè*; *Fructus enim quadrangularis est aut pentagonus*.

It bears an oblong Fruit, with a small Umbilicus; but standing out, at the Top, fulcated with five pretty thick Ridges, which are most prominent in the Middle, and cover'd with a thin Rind, sticking very close to the Pulp, smooth, shining, first green, afterwards yellowish, surrounding a Pulp, which is first whitish, then yellowish, tender, juicy; of a harsh Taste at first, but afterwards of an acid Sweetness. In its pentagonal Middle are contain'd ten oblong Seeds, blunt at one Extremity, and sharp at the other, red, smooth, separated by some hard and membranaceous Pellicles in such a manner, that one Cell holds two of them. *Garcia* and *Acosta* make the Fruit quadrangular, and divided, as it were, into four Parts, and to be of about the Size of a large Hen's Egg.

It is cultivated in Gardens and Orchards; blossoms and bears ripe Fruit thrice in a Year, from three Years after grafting or planting the Seed till fifty.

The Juice express'd from the Roots, being taken inwardly, allwages feverish Heats. Of the bruised Leaves, together with an Infusion of Rice, they make a Cataplasm, which effectually mollifies and dissolves all Sorts of Tumors: Of the same, boil'd or macerated in an Infusion of Rice, is prepared an excellent vulnerary Decoction. The express'd Juice of the Fruit cures the Itch, Impetigo, Psoa, and the like cutaneous Affections, if Linen Cloths be moisten'd with it, and now-and-then applied to the affected Places. The same, drank with burnt Wine of the *Indian Nut*, commonly call'd *Arac*, eases Pains in the Belly, and stops a Diarrhoea. Of the Leaves bruised, together with the express'd Juice of the Flowers of the Date-tree, is prepared a Cataplasm, which cures all Kinds of Inflammations. Of the dried Fruit, together with the bruised Leaves of *Betel*, is prepared a Powder, which, being drank in burnt *Arac*, promotes the Pains of Child-birth, and expels the dead Fœtus and Secundines. The ripe Fruit is delicious Food: The unripe is preserved with Sugar, or in Pickle with Vinegar. The Juice of the unripe Fruit, falling on Cloaths, takes off the Colour with its Acidity; and is frequently used for taking Spots out of Linen: Colours also are prepared of it, for the Staining of Linen; and it is customary for Goldsmiths to take the unripe Fruit, and boil it with Silver Vessels for their Depuration. There are two Species of this Tree, which can hardly be distinguish'd, but in that the Fruit of one of them is altogether of a sweet Taste. *Raii Hist. Plant.*

CARAMBU. A Species of *Lyfimachia*, growing in *Malabar*. See *LYSIMACHIA*.

CARANAIBA. A Species of the *Palma*, or Date-tree. See *PALMA*.

CARANDAS, *Garcia*, *C. B.* *Carandas Indica*, *J. B.* *An Auzuba Oviedi?*

This, according to *Garcias*, is a Shrub of the Bigness of the *Arbutus*, and with Leaves like it. Its Fruit very like a little Apple, blackish when ripe, of a very grateful Taste, like that of Grapes, out of which some press a vinous Juice. The green Fruit is about the Size of a Hasle-nut, or larger, and sometimes distils a viscid and milky Juice. The ripe Fruit is sometimes eaten with Salt, but is usually pickled green with Vinegar; and is of Use to excite a languishing Appetite. It grows in the Island of *Balagate*, and also on the Continent.

The *Auzuba* is describ'd, by *Oviedus*, to be a large beautiful Tree, growing in the Island of *Hispaniola*, of a firm and useful Substance; bearing a Fruit, which, in respect of its extraordinary Sweetness, is like the *Pyræ Apiana*, which they call *Moschatellina* (*Musk-pears*); but, being full of a viscid and glutinous milky Juice, such as is in unripe Figs, lies heavy on the

the Stomachs of those who eat it; except they first throw it into Water, and, with their Fingers, press out the milky Juice, which subsides to the Bottom.

The *Carandas* of *Bontius*, tho' he takes it to be the same, seems to be a different Tree from the foregoing. The Leaves, he says, of the Tree, which the *Malayans* call *Carandie*, are exactly like those of the Tamarind-tree; but the ripe Fruit is inclosed in Shells, like Nut-kernels, one in a Shell, and not after the manner of Tamarinds. The Fruit, when the Shell is open'd, appears of an Orange-colour; and its outer Pulp is very grateful to the Taste, and not so subject to set the Teeth on Edge as that of Tamarinds, but participates of a Sweetness; and, besides, is not endu'd with a laxative Virtue, as are the Tamarinds. *Raii Hist. Plant.*

CARANNA, Offic. C. B. Pin. 503. J. B. 1. 319. Chab. 74. Park. Theat. 1576. *Raii Hist.* 2. 1847. *Jonst. Dendr.* 356. *Caranna seu Caragna*, Geoff. *Tract.* 356. *Tabaculiloca Quabuitl*, i. e. *Arbor insanae*, *Caragna nuncupata*, Hern. THE CARANNA-TREE. *Dale.*

Hernandez, according to *Konigius*, in his *Regnum Vegetabile*, describes the Caranna-tree to be tall, with a yellow, smooth, shining, and odorous Trunk, and oleaginous Leaves, dispos'd in the Form of a Cross. According to *Des Marchais*, in his *Voyage en Guinée*, the Caranna-tree is a Species of Palm, and spontaneously pours out its Resin or Gum, when an Incision is made in its Bark. This Gum or Resin is externally of a cineritious or blackish Colour, but internally of a Colour resembling that of Pitch, of a bitter, pinguious, and oleaginous Taste, of a fragrant Smell, resembling that of Lavender.

This Gum is imported in soft Masses, wrapt up in the Shreds of Reeds or Bulrushes, from *Carthagera*, a Province in the *West-Indies*, or of *New-Spain*.

The whiter the Caranna is, the better it is thought, especially if it is soft, and of the Consistence of a Plaster. In Virtues it agrees with the Tacamahac, but is more efficacious. The *Indians*, according to *Monardes de Simplicibus Medicamentis*, use it in Tumors, and Pains of all Kinds. It is recommended in the same Diseases in which Tacamahac is proper; but exerts its Virtues in a shorter Time, and cures those Disorders which prove too obstinate for Tacamahac. Of this, says *Monardes*, I have seen an Instance in a Patient, who, in consequence of a violent Pain of his Shoulder, could not move his Arm for a great while, tho' he had used Tacamahac; but, after he began to apply Caranna, his Disorder was removed in three Days. This Gum is of singular Efficacy in Pains of the Joints, which, when apply'd, it easily removes; except in Cases where there is a Defluxion of hot Humours. It dissolves inveterate Tumors, and puts a timely Stop to Defluxions of cold or mix'd Humours. It is highly beneficial in any Pains of the Brain and Nerves; and, without an Admixture of any other Medicine, cures recent Wounds, especially of the Nerves and Joints. If apply'd to the Ears and Temples, it stops Defluxions on the Eyes and other Parts. These are the Virtues which *Monardes* ascribes to Caranna. *Ettmuller*, *Tom.* 1. informs us, "that, " in Cardialgias, Pains, and other Disorders of the Stomach, " it is often apply'd, by way of Plaster, to the Region of the " Stomach. The Method of preparing it for this Purpose is, " to put it in a warm Mortar, and, with a warm Pestil, to " mix it with a sufficient Quantity of Balsam of *Capivi*. " Nothing is better than this Plaster in continued, malignant, " and intermitting Fevers, where the Patients complain of an " Uneasiness of the Præcordia. It is also proper for stopping " Vomitings, when made up with the distil'd Oils of Nutmeg and Mace. This Plaster is highly beneficial in Pains " of the Joints, commonly ascrib'd to catarrhus Defluxions, " in Cases where the Joints have been exposed to Cold, either " during a Diaphoresis, or after it is over. When moisten'd " with Oil of Amber, it is an excellent Remedy against arthritic Pains, and those of the Joints; as also for Wounds of the Nerves, and Contusions of every Kind. It is also used " in Cephalic Plasters, and those apply'd to the Bregma. The " Moderns apply a Plaster of it, as big as a Dollar, to the " Temples, as a Preservative against the Tooth-ach; but, for " this Purpose, Massich is by most prefer'd to it. In Inflammations of the Eyes, apply'd in the same manner, it is an " excellent Remedy for preventing Defluxions, and giving a " Check to the Lymph, which often abounds too much in " Ophthalmies and Tooth-achs." In *Schroder's Pharmacopœia* there is a celebrated Plaster against the Gout, prepar'd of one Ounce of Gum Caranna, and half an Ounce of yellow Wax, made up with Oil of Mullin. *Faber*, in his *Myrtheicum Spagiricum*, L. 2. C. 41. orders the Quintessence of Caranna to be prepar'd in the following manner:

Digest Caranna with highly rectify'd Spirit of Wine, in a moderately warm Heat, for fifteen Days, that it may be dissolved: Then distil; but observe the Degrees of the Fire so carefully, that first a Spirit, then a yellow Oil, and lastly a reddish Oil, may be yielded: Rectify these Oils three or four times: Calcine the remaining Fæces. With these

Oils mix, in a moderate Bath-heat, the Salt, lixiviated from the calcin'd Fæces, after it has been often calcin'd and dissolved.

This Medicine he highly recommends for external Use, either alone, if the Part affected be anointed with it moderately warm; or, mix'd with other Ointments, in arthritic Pains, arising from a cold Cause; as also for dissolving or softening hard, cold, and scirrhus Tumors; and for healing old and inveterate Ulcers: As also in colic Pains, arising from Phlegm, and glutinous or flatulent Humours. It is also good in a Hemiplegia, and Pains of the Head, arising from a cold Cause. He recommends it to be taken internally from ten to twelve Drops, in a poach'd Egg, Syrup of Violets, or Syrup of Poppies. In *America* there is a celebrated Balsam, made of Caranna, for Wounds, and the Hemorrhoids. *Pomet*, L. 2. orders it to be prepar'd in the following manner:

Take of the best Turpentine, half an Ounce; of liquid Amber, three Ounces; of Balsam of *Capivi*, Tacamahac, and Caranna, each two Ounces; of Maltich, Myrrh, Aloes, Frankincense, Dragon's-blood, and Sarcocol, each one Dram: When the Gums and Resins are melted over a Fire, the other Ingredients, reduced to a Powder, are to be mix'd with them.

Geoffrey observes, that this is term'd a Gum, but very unjustly, because it is dissoluble only in Spirit of Wine, which is the Property of resinous Substances.

CARA-NOSI. An *Indian* Shrub. The same as NEGUNDO, which see. *Ray*.

CARAPATINA. The same with BUFONITIS, which see.

CARARU *Brasilensibus*, *Blitum Brasilianum Lusitanis*, *Bredos. Margg.* A Species of Blite growing in *Brasil*, which has in it nothing remarkable. *Raii Hist. Plant.*

CARA-SCHULLI, H. M. *Frutex Indicus spinosus, Caparis Forma, Siliqua bivalvi brevi.* An *Indian* Shrub, like the Caper-shrub. As to its medicinal Uses, being reduced to Powder by the Fire, and mix'd with Vinegar, and rubb'd on the Part, it dissolves Tumors. Beaten to Powder, and mix'd with the Liquor call'd *Surie*, made of the Cocoa-nut, it serves to ripen and break Abscesses. The Decoction of the Root is good in a Suppression of Urine; taken with a little Rice, it is effectual in a Tumor of the Belly. A Decoction of the Leaves, with a small Quantity of Rice, taken inwardly, is good to extenuate tumefy'd Limbs. *Raii Hist. Plant.*

CARATA, or KARAT. This was a Weight antiently used by the Workers in Gold, and Lapidaries. With respect to Gold, twenty-four Karats made a Marc; but, in our Times, it is only used for judging of the Purity of Gold. But, with respect to precious Stones, the Word *Karat* imported a Weight only of four Grains. *Rieger*.

CARAUCIA. See under CARABUREA.

CARBASUS, *υδρροσφ, λευκον.* Thin Linen, or Threads of fine Linen, on which Surgeons lay their Powders, or spread their Ointments, to be apply'd to diseased Parts; or use to dry up the superfluous Moisture in ulcerated Places. The Word is used by *Scribonius Largus*, N^o. 227.

CARBO. A Coal; properly, I think, Charcoal, which is generally meant by Authors, when used without the Epithet *Fossilis*. Fossil Coals are thus distinguish'd.

CARBO FOSSILIS, *Lithanthrax*, Offic. Mer. Pin. 216. *Lithanthrax seu Carbo fossilis*, *Charlt. Foss.* 14. *Boet.* 339. *Carbo fossilis, seu Lithanthrax*, *Worm.* 31. *Gæbal.* 26. *PLT-COAL*, or *SCOTCH COAL*.

Upon the Subject of fossile Coal, *Hoffman* has given us the following curious Remarks.

To discover the Elements or Principles of fossile Coals, by means of a chymical Analysis, says he, is our present Design. These Coals, then, distil'd from a Retort by an open Fire, yield first a Phlegm, then a somewhat acrid sulphureous Spirit, then a subtil Oil, then a grosser Oil, which subsides to the Bottom of the Receiver; and, lastly, by a brisker Degree of Fire, a certain acidulated Salt, resembling that of Amber. In the Retort there is left a light black Earth, which, upon the Application of Fire, emits neither Flame nor Smoke. I shall here give a brief, but accurate Description of the several Experiments I made, in order to investigate the Nature of these Principles.

The Spirit yielded in Distillation is at first white, but afterwards appears ting'd with a reddish-brown Colour; which Phenomenon may also be observed in the Spirits yielded by Woods, Tartar, Myrrh, and other Substances of a like Nature. Upon an Affusion of the acid Spirit of Salt, a large Number of Bubbles immediately appear'd at the Bottom of the Vessel, which, becoming gradually and successively more numerous, ascended to the Surface of the Liquor, but without any remarkable Perturbation of the Mixture. With Spirit of Nitre the Conflict was greater, and the Liquor was render'd more turbid.

Upon a sufficient Quantity of Quick-lime being thrown into this Spirit, a strong volatile Spirit immediately affected the Nose in a forcible manner. Upon an Affusion of Spirit of Nitre to this Mixture, a thick white Fume was forthwith emitted; which we always observe to happen, when we add Spirit of Nitre to volatile Salts or Spirits. The fetid Oil, intimately united and incorporated with Salt of Tartar, also diffused a Smell like that of volatile Salt. Upon Distillation, this Mixture yielded an alkaline, volatile, and oleous Spirit, which immediately became green with Syrup of Violets, as all Alcalis do; but, when mix'd with an Acid, raised a sudden Effervescence, and immediately assum'd a perfectly red Colour.

The gross empyreumatic Oil of these Coals, obtain'd in the first Distillation, emitted a sulphureous Smell. When put into a Silver Spoon, to which a gentle Heat was apply'd, it immediately ting'd it of an obscure blackish Colour; a sure Proof, that a true mineral Sulphur is dissolved in it; for common Sulphur, dissolved in Oil of Turpentine, tinges Silver Vessels with the same Colour.

The acid Salt, upon an Admixture of Oil of Tartar per Deliquium, assum'd a near Affinity to that obtain'd from Amber by Distillation. Spirit of Sal Ammoniac excited a large Number of very broad Bubbles, which collected themselves in the Bottom of the Glas: But, immediately after, the Mixture, which was before limpid, assum'd a reddish Colour; and, upon the Affusion of an Acid, return'd to its former Transparency.

'Tis rarely observ'd, that an Acid is thus ting'd by an Alkali. That I might, therefore, trace the Cause of this Phenomenon more accurately, I mix'd dissolved volatile Salt of Amber, which I thought of a like Nature with the Salt of which we now speak, with vinous Spirit of Sal Ammoniac; by which means, after some Conflict, the Mixture in a little time assum'd a beautiful brownish-red Colour; and an excellent Medicine, of Virtues not inferior to succinated Spirit of Hartshorn, was produced.

These are the principal Experiments I made, in order to investigate the Nature of fossile Coals; from which, I think, it is obvious, that no deleterious Principle, nothing offensive to the Mass of Blood, and the minutest Parts of the Body, in a Word, no noxious Mineral, no Quantity of Arsenic, are found in them.

That a mineral Sulphur is not so fatal as is commonly believed, is sufficiently attested by those Men who prepare, fuse, and boil the Sulphur of *Goflar*, who are found and vigorous, in comparison of other Metal-workers. Nor is there, in the *German* Coal, a very considerable Quantity of this Sulphur, otherwise it might be easily obtain'd dry, and in the Form of Flowers, by Sublimation; for these mineral Coals are a porous and spongy Earth, richly and intimately impregnated with a bituminous and subterraneous Juice. Bitumen is their constituent Principle, without which they would neither emit Flame nor Smoak: But the Bitumen they contain, like all the other Species of Bitumens, of which Amber is one, consists of oleous, sulphureous, acid, and fine alkaline Parts, as is obvious from the chymical Analysis of Amber, Bitumen Judaicum, Naphtha, Petroleum, and all other resinous Bodies.

So far, then, are these Principles from proving prejudicial to the vital Juices, that, by drying up the superfluous Humidity, they rather defend the Mass of Blood, and the Body, from Corruption and Putrefaction; for, according to *Galen*, all Bitumens are endow'd with a balsamic Virtue. Besides, that bituminous Bodies, set on Fire, correct the bad State of the Air, and dissipate its superfluous Humidity, are Points admitted by most modern Physicians; and the Antients used Sulphur and Asphaltus, in order to correct and purify the Air, when Plagues and contagious Diseases raged.

Places in which the Atmosphere is very moist, and impregnated with aqueous Exhalations, which weaken its Force and Elasticity, are not wholesome; because, by that means, Perspiration being obstructed, a Load of recrementitious and saline Sordes are retain'd in the Body, and communicate a depraved and scorbutic Intemperature to the Blood and Humours, from which terrible chronical Disorders arise. 'Tis therefore obvious, that the sulphureous Vapour of fossile Coals is of singular Service in Countries where the State of the Air is moist and unactive, as is evident from the City of *Halle*.

An immense Quantity of aqueous Exhalations, arising not only from the River *Sale*, diffused into many Branches, but also from the Salt-works, whilst each Day at least ten thousand Pounds of Water are evaporated into the Atmosphere surrounding that City, must of course beset the Town, at Morning and Night, with Clouds, which every one must perceive to be prejudicial to Health, unless an Easterly or Northerly Wind dispel them. And, in Times past, no City was more obnoxious to Scurvies, Consumptions, purple and malignant Fevers, than *Halle*; but since, about twenty Years ago, they began to burn fossile Coals for boiling the Salt, the Atmosphere is so purify'd, that these Diseases are scarce heard of in that City. In former Times the Physicians, who practised in it, complain'd, that no Disease occur'd to them, which was not accompany'd with a scorbutic Taint. Numbers of young Men were cut off by

Consumptions and Dysenteries; and petechial and spotted scorbutic Fevers raged excessively; but now these Disorders happen rarely, and then only a few are affected with them.

But I am well apprised, that it is by some objected, that the Exhalations of fossile Coal are rather pernicious than advantageous to Health; because they prey upon Metals, especially the Iron and Lead of Windows, which they consume; and because, in Gardens which are near them, and thick set, they render the Trees and Shrubs barren and sapless. 'Tis also objected, that in *England*, and especially *London*, a Consumption is produced, peculiar to that Country, by a preternatural Dryness of the Vesicles of the Lungs, in consequence of this Smoak; as also, that its Smell is fetid, and highly disagreeable.

But to all these Objections we answer, That tho' the Smoak arising from a mineral Sulphur, and from Vinegar, are possess'd of a powerful Virtue, by which they consume those lighter and more porous Metals, Iron and Lead; they are not, for that Reason, less proper for purifying the Air, when a Plague rages, or dissipating its superfluous Moisture, so prejudicial to Health. Besides, that this Smoak does not, in the least, injure the Health of those People who inhabit the Houses exposed to it, and in which the Leads of the Windows are corroded, is a Fact attested by daily Experience, since few of them labour under any Disorders of the Breast.

That this Smoak, however, may prove prejudicial, when thick and dense, is a Fact of which I am firmly persuaded; for as a large Quantity of Exhalations from a balsamic Gum, which is friendly to Nature, for Instance, from Mastich, Benjamin, or *Peruvian* Balsam, is ungrateful; so 'tis not to be doubted, but the dense Vapour of Bitumen, which is not very grateful, may create Disorders; which, however, seems to be owing not so much to its Nature, as to the Excess of its Quantity. 'Tis not, therefore, to be wonder'd at, if in *London*, where a gross State of the Air, Gluttony, and excessive Drinking, especially of spirituous Liquors, induce a morbid State of the Humours, an excessive Quantity of the Smoak, arising from fossile Coals, should prove prejudicial, and produce a Dryness of the Lungs.

As to that Objection of the Smoak being fetid, disagreeable, hurtful to the Nerves, and membranous Parts, and prejudicial to those who labour under a Weakness of the Nerves and Head, we answer, That tho' the Smells of fetid Substances are not always grateful to the Delicate, yet they are not, for that Reason, prejudicial to Health; as is obvious in the Spirits of Soot, Worms, and Hartshorn, which are all highly fetid. But how much these Spirits contribute to repair the Strength, and to preserve and purge the Mass of Blood and Humours, is known to almost every one concern'd in Physic. It must also be observed, that the Smell, even of Perfumes, is ungrateful to many; as we observe in Women who have weak Nerves, and who not only bear Fetids more chearfully, but receive a Kind of Relief from them. *Hoffman's Obser. Physico-chymicae selectiores.*

It would be happy for the *English*, if their Conduct would permit me to contradict, with Truth, the Charge which *Hoffman* has brought against them.

Of Vegetable COALS.

All vegetable Substances, especially Woods, when treated with a close Fire, are converted into Coals, which are porous, light, black Bodies, retaining the Figure of the original Body, and which easily take Flame; and, by a strong Degree of Fire, partly fly off in the Air, and partly are resolved into Ashes.

The Coals most frequently in Use are thus prepared:

A Pile of Wood is rear'd up, and cover'd with Earth. Fire is then put under it. Thus it is kept from flaming openly; and the Fire, gradually and gently seizing the Wood, thoroughly extracts all its Moisture; as also its acid Principle, and the subtle Oil it contains. The remaining thick Oil is indeed extracted, but afterwards penetrates more deeply into the Pores of the Parts.

In consequence of this Oil being disengaged, and set at Liberty, they easily take Flame; just as we see Linen Cloth, so gently burnt, that all their Oil is not extracted, afford a Basis, and prove, as it were, a Nourishment to the Fire. This is what we call Tinder, which is used for renewing the Sparks of Fire struck from Steel and Flint. Not only all Vegetables, but also all the Parts of Animals which preserve their Blackness, may be converted into Coals of this Kind, fit for taking Flame.

But 'tis to be observed, that no Kind of Coals, even by the greatest Force of Fire, will either burn, or be converted into white Ashes, in a close Vessel; which easily happens in the free and open Air, where they are resolved into a fine Smoak, leaving Ashes, which, when lixivated, afford an alkaline Salt, if the Coal has been taken from the Vegetable Kingdom. If these Ashes, which are impregnated with Salt, are boil'd in Water,

Water, the Salt becomes more caustic; which Effect is also produced, if they are form'd into small Balls with Water, dried, and again subjected to the Fire. Tho' this Species of Coal is generally used for Fewel, yet it is of more extensive Use for answering the various Purposes of Mechanics, Chymists, and Metal-workers.

But as there is a great Difference between Vegetables, so the Coals produc'd from them vary proportionably from each other. Beech-wood is prefer'd to all others for Fire, and the Coals prepar'd of it are better and more valuable than all others, for which Reason they are us'd for converting Iron into Steel; for the more solid and ponderous Coals are, the fitter and more proper they are for this Purpose. *Bocher*, in his *Physica Subterranea*, mentions an Experiment, by which Coals may be reduc'd to an inflammable insipid Spirit, by being mix'd with distil'd Vinegar; but as little Credit is to be given to the Experiments of this Author, so we have some Reason to doubt of the Success of this.

'Tis, however, certain, that Coals, by a lively brisk Flame, are dissolv'd into a very fine and scarce visible Vapour, and are dissipated into the Air without any sensible Smell; but this Vapour or Smoak immediately becomes visible, if with a clean Pen Letters are made on a Piece of Paper with a Solution of Alum, or with Spirit of Vitriol; for when the Letters are dry, and the Paper held over the Smoak of the Coals, they appear as black as if they had been wrote with the blackest and best saturated Ink.

If in a Room, especially one with a low Cieling, the Air is impregnated with this subtle Vapour arising from kindled Coals, especially in cold Weather, it is as fatal to Animals, especially to Man, as Poison, and induces an apoplectic Stupor and Drowsiness, which, if due Measures are not taken, kill the Patient in a short time; innumerable Instances of which every-where occur, especially if, in cold Winters, too large a Quantity of these Coals are incautiously put into the Stove. The noxious and prejudicial Quality of this Vapour has been observed by the antient as well as the modern Physicians, and numberless Examples of its bad Effects are specify'd by them.

But, tho' the noxious Quality of this Vapour has long ago been prov'd by uncontroverted Facts, it is surprising, that it should be so much overlook'd, and so little adverted to, by most of our modern Physicians, that few of them have taken the least Notice of it, or laid down the Precautions which an Affair of such Importance seems to require; much less has the Cause of this noxious Quality been inquir'd into, or the Reason investigated, why this Smoak, drawn in with the Breath, throws the Patient into a profound Sleep, a Stupor of the Senses, a Palsy, a Hemiplegy, and, if seasonable Relief is not afforded, induces Death itself.

But since almost the same Effects are observ'd to be produc'd by the Smoak of common Sulphur, whilst a very small Portion of it, set on Fire in a little Room, kills some Animals, we are to inquire whether Coals and mineral Sulphur are possess'd of one common Principle, by which they produce so sudden and so fatal Effects.

'Tis well known, that a few Grains of Sulphur, set on Fire, will diffuse a large Quantity of a very fine, but fetid Fume thro' all the Parts of a large Room. 'Tis not to be doubted, but by the Fire almost the whole Substance of the Coal may be dissipated in the Air, in a fine invisible Smoak or Exhalation, which also becomes visible when Letters are wrote upon a Paper with a Solution of Alum, and apply'd to the Smoak of the Coals, as we have already observ'd.

This thin and subtle Vapour, then, being carried into the Air, and, by Inspiration, convey'd thro' the Nostrils into the Head, and thro' the Aspera Arteria into the Lungs, by the Tenuity of its Parts intimately insinuates itself into the Pores of the solid Parts and Vessels, and penetrates the minutest Pores of the Nerves, Meninges, and Brain, where, conveying a Taint into that fine subtle Fluid, by means of which Sensation and Motion are perform'd, it disturbs and inverts the animal Actions. It also happens, that the Air being impregnated with a great deal of these Vapours, when it is received into the Lungs, loses a great deal of that Force and Elasticity by which it ought to distend and inflate the pulmonary Vessels.

Now since mineral Sulphur, the Vapour of which is as prejudicial as that arising from live Coals, consists of two Substances, one of which is of an acid, and the other of a pinguious earthy Nature, which takes Fire; and since this somniferous and narcotic Virtue does not reside in an acid Spirit; the Cause must be sought for in that exhalable, sulphureous, or phlogistic Substance, such as is also found in Coals, from which, as is well known, Sulphur may be obtain'd by means of an Acid. Hence it happens, that the Vapour of Coals produces the same Effects, and the same Train of Symptoms in Animals, with the Smoak of Sulphur, the phlogistic Part of both being nearly the same. But every one knows, that all sedative, narcotic, and anodyne Virtues, are to be deduc'd from Sulphur resolv'd into very fine Vapours, as is obvious in Saffron, Opium, Nightshade, Thorn-apple, Poppies, and Mandrake. These Effects may be

produc'd, tho' the Smell of the Coals is not really perceiv'd, because the Smell arises not so much from the Sulphur alone, as from that, and a Mixture of the Salt which exalts it.

We shall now recount the various Phenomena produced by throwing various kinds of Salts and Minerals upon live Coals. First, then, Nitre, fus'd in a Vessel by a very intense Fire, does not burn; but, upon throwing live Coals into it, immediately takes Flame; which greatly increases the Fire of the Coals themselves, just as if a Bellows were apply'd to them.

Common Salt, when thrown upon live Coals, not only decrepitates, but also animates and invigorates their Fire, and raises a whitish Smoak, which, when adhering to any Vessel, is with Difficulty taken off, and tastes somewhat saltish.

Vitriol, which partakes of the Nature of Copper, when thrown upon live Coals, emits a beautiful azure-colour'd Flame. If Alum is thrown upon them, it first boils, and rises in a white Froth; and, upon increasing the Fire, loses all its Taste, and remains an earthy, spongy, and white Body. When a few Drops of Oil of Vitriol are thrown upon live Coals, a Vapour, of a Smell resembling that of Sulphur, is forthwith emitted.

Borax thrown upon them is first converted into a white Froth; and afterwards, by rendering the Fire more intense by a Pair of Bellows, it immediately runs into a Mucilage, which is soon turn'd into a vitreous pellucid Mass.

I also made an Experiment with *Epsom* Salt, that of *Glauber*, depurated Aphronitre of *Gena*, as also with the *Sedlitz* Salt in *Bohemia*, the native *Schemnitz* Salt in *Hungary*, and that prepared from the Fountains of *Egra*. These I threw separately into the Flame, expecting a sulphureous Smell to be emitted, but no such Phenomenon appear'd; for they were first rais'd into a thick Froth, which, when all the Humidity was evaporated, sunk down into a white earthy Mass, of a saline sub-astringent Taste, and which, with Spirit of Vitriol, neither produc'd an Ebullition, nor emitted any considerable Smell. But we observe a very signal Difference between these Salts, if they are not put directly and immediately upon the Fire of Coals, but are mixed with their Dust, and Fire is afterwards apply'd to them in a Crucible; for, by this means, they are partly carry'd off into the Air, like the Fume of Sulphur, and partly leave behind them a sulphureous alkaline Mass.

By this Experiment alone we are sufficiently taught the different Effects produc'd by treating some Bodies, even of the mineral Kind, with the Flame of Coals, and by subjecting them to the Fire, when mixed with the Powder of Coals in a close Vessel.

The Arcanum Duplicatum, vitriolated Tartar, and all neutral Salts with which the Acid of Vitriol is join'd, when thrown upon live Coals, first decrepitate gently, and afterwards fly off in the Air, without any visible Exhalation or Smell, and without almost leaving any perceptible Traces of themselves; whereas, when exposed to the Fire in a Crucible, and mix'd with Powder of Coals, they are, by the Addition of a small Quantity of an alkaline Salt, converted into Liver of Sulphur.

In Metal-working it is a remarkable Circumstance, that Tin, Iron, Copper, and Lead Ore, as also the Calxes of Antimony, the Scoriae and Glasses of Metals, are not converted to a pure Metal, unless Coals are intimately mix'd with them, and they are then fus'd by an open Fire. Whether by this means, as some think, any Part of the phlogistic Principle of the Coals passes into the Mixture of the Metal, and restores that which is carried off in Calcination by the Fire, or by the Addition of any other Substances; or rather, whether, by this means, that which prevents and hinders the Fusion of the Metals is only remov'd, are Points that deserve a more accurate Disquisition.

The Phenomenon is, in my Opinion, to be accounted for in another manner. The Acid of the Sulphur inheres in the metallic Ore, because, by the previous gentle Calcination, the oleous and inflammable Part flies off. The Calxes also, and Glasses of Metals and Minerals, are produc'd by an Acid, which intimately penetrates their Pores, and changes the Figure and Situation of their Parts; but when this acid Salt, which is the Cause, is remov'd, they return, and are restor'd to their former State and Contexture. For these Purposes, then, such Substances are indicated as penetrate intimately, and possess a Power of absorbing an Acid, among the Number of which are Coals, which, when in a Flame, not only afford an immediate Fire for reducing Bodies, but also, by their oleous, rarefactive, alkaline, and volatile Principle, enter the minutest Pores where the Acid lurks: This Acid they absorb, and, by that means, restore the Metal. That the Smoak alone of Coals is of a very penetrating Nature, and fit for correcting Acids, is sufficiently proved by the Observation of *Stahl*, who found, that the fix'd and acid Oil of Vitriol cannot be obtain'd, if in the Retort there are any Fissures, by which the penetrating Smoak of the Coals entirely changes and destroys the acid Vapour of the Vitriol, so that a highly volatile Spirit is yielded instead of a corrosive Acid.

'Tis worthy our Observation, that the solid and highly lucid *English Phosphorus* cannot be prepared in so large a Quantity, unless Powder of Coals is added to the putrid and inspissated Urine.

How beneficial Powder of Coals is in rendering the Ground fruitful, is well known to Gardeners, who for that Purpose use Coal Dust, Marls, and old Mortar taken from Walls. 'Tis incredible how surprisingly Lemon and Orange-trees, as also Clove-gilly-flowers, thrive by this means.

The Dust of Coals renders moist Soils so fruitful, that the Strawberries produc'd in them are by this means render'd much larger than they would otherwise be; and all Plants are considerably enlarged; for that earthy and sulphureous Alkali lodg'd in the Coal Dust, being resolv'd by the Rain, and the Heat of the Sun, renders the Earth so fruitful, that the nutritive Juice, percolated thro' it, not only quickly enters the minutest Pores of the Vegetables, but is more easily converted into their Substance.

From this Experiment it is obvious, that the chief Principle of Fecundation is rather to be sought for in a sulphureous than in a saline Substance, which, if it is of an alkaline Nature, produces no other Effect than to attenuate and resolve the sulphureous Matter more, and to change and absorb the Acid, which greatly obstructs Vegetation.

Not only the Dust of Coals, but much more the Bones of Animals calcin'd to black Ashes, impart a certain Fruitfulness to the Ground, because they contain in them a larger Quantity of Oil than Coals do; so that they may very properly be us'd, in Conjunction with other Substances, to forward the Growth of Vegetables.

We have no Reason to doubt of the anodyne Virtues of Coals in spasmodic and convulsive Disorders, since Coals of the Lime-tree make the principal Ingredient in the black antiepileptic *Saxon Powder*, which has acquir'd so extensive a Reputation for the surprising Effects it produces. *Rulandus*, in his *Thesaurus Medicus*, informs us, that Epilepsies, Gripes, Colics, and Fluxes, are cur'd by the Coals of the Lime-tree. *Hoffman. Observat. Physico-chymicæ.*

I must take the Liberty of adding to what *Hoffman* relates concerning the deleterious Vapour of vegetable Coals, that fossile Coals, especially those half burnt, which are usually call'd *Cokes*, will have a like Effect, if the Fumes thereof are confin'd in a small Room. Of this I met with Instances in two Servant-maids, who took some Coals in a Warming-pan into a damp Room where they lay, in order to warm it during the Night. The Consequence of this was, that the next Morning they were found, in all Appearance, expiring, being senseless and stupid. The Method I took for their Relief was, immediately to expose them to the fresh Air, to bleed them, and to attempt to restore the Circulation of the Blood by Frictions, and every thing which would stimulate strongly, either administer'd internally, or applied externally. By these means they both recover'd in a few Hours; being more fortunate than two other Servants of the same Sex, who were found actually dead in the Morning, on account of the same Imprudence, in the Neighbourhood where I at that time resided.

CARBUNCULUS, ἀνθραξ, a Carbuncle.

Of Ulcers which arise from internal Causes, and corrupt a Part of the Body, there is none worse than a *Carbuncle*, the Characters of which are as follow: There is a Redness, with an Elevation of Pustules, though to no great degree of Eminence. Those Pustules are generally black, sometimes livid, or pale: They seem to contain a Sanies, and are black within. The Part possess'd by the Carbuncle is dry, and harder than in its natural State, cover'd with a kind of Crust, and environ'd by an Inflammation. In that Place there is no raising of the Skin, which seems fix'd to the subjacent Flesh. The Patient is oppress'd with Drowsiness, and sometimes is seiz'd with a Shivering, or Fever, or both. The Disease spreads underneath, and out of Sight, sometimes slowly, sometimes swiftly, and propagates itself, as it were, by Roots. Above, as it takes its Progress in open View, it appears first whitish, then livid, and surrounded with small Pustules; and if it happens about the Stomach or Fauces, it often suddenly strangles the Patient. *Celsus, Lib. 5. Cap. 28.*

Carbunculus is defin'd by *Galen*, or whoever is the Author of the *Definitiones Medicæ*, ἑχασώδης ελκωσις, μεννομένη καὶ ῥυμάλω, ἐντορε καὶ βυβώνων, καὶ πυρετῷ. "A crusty spreading Ulcer, attended with a Conflux of Humours, and sometimes with Buboes and a Fever." *Galen, Com. ad Aph. 45. Lib. 6.* gives a shorter Definition, tho' not disagreeing with the former, as follows: Ἀνθραξ ἐστὶν ελκὸς ἑχασώδης ἀμὰ πολλὰ τῇ γῆσι πάρεξ σωματῶν φλογίσις. "A Carbuncle is a crusty Ulcer, attended with a great Inflammation of the adjacent Parts." It derives its Original, according to the same Author, *Lib. 2. de Præfug. ex Pulf. Cap. 1.* from melancholy Blood putrefying, and inflam'd to such a degree as to burn the Skin. And, in his *Comment. 3. in Lib. 3. Epid.* he says, Ὁ ἀνθραξ ἐν θερμῇ μεντοὶ πυρετῷ, παχέας δὲ καὶ τὴν σῶσιν ἔχει τὴν γῆσιν.

"A Carbuncle is generated of a gross Matter, and attended with a fiery Heat."

Paulus Ægineta gives the following Original and Description of a Carbuncle: Τὸ ἀνθραξ μελαγχολικῶς ἐρεθισμῶς, ἐστὶ. "When the Blood becomes atrabilious to an immoderate Degree, and, being put into an Effervescence, falls upon any Part, there is generated what they call a Carbuncle, which is a crusty Ulcer, beginning, for the most part, with a Pustule (ζυμυλαίνω) like a Burn, and sometimes without it. At first the Patient falls a scratching the Part, when arises sometimes one Pustule, sometimes more, like Grains of Millet for Smallness, which breaking there becomes a crusty Ulcer, as if it were produc'd by an actual Caustery. The Crust appears sometimes of an Ash-colour, and sometimes black, and also adheres, and is fix'd on its Base, to the Part, and dilates itself by its phagedenic Property. The Flesh all around is very much inflam'd and black, and shines like Pitch or Bitumen. This exactly answers the Nature of black Bile. Carbuncles in the Flesh are but of short Duration; but those which affect the Membranes and Nerves are of longer Continuance, and communicate their ill Effects, by Consent of Parts, to the neighbouring Places, so as to affect them with erysipelatous Inflammations, many of which come to a Suppuration, but most of them are attended with a Fever. Carbuncles, also, arise from epidemic Causes." Thus *P. Ægineta, Lib. 4. Cap. 25.* whom *Ætius* copies Word for Word.

A Carbuncle is an Inflammation, which, in pestilential Times, rises with such Vesicles as are the usual Effects of a Burn. This Inflammation, for the most part, suddenly degenerates into a Sphacelus, and corrupts the subjacent Parts to the very Bones, rendering them as black as a Coal; and this seems to be the Reason why the *Latins* call this sort of Pustules or Vesicles *Carbunculi*, and the *Greeks* ἀνθραξ, *Anthraxes*.

A Carbuncle almost always breaks out very suddenly and unexpectedly, in an Hour or two at the most, and is attended with a Pain and Heat. As soon as it is opened, it discharges a livid Sanies, or sometimes a limpid Water. It is black within, which is a Sign, that the Sphacelus has already seiz'd the subjacent Flesh, and is making its Progress; but in those who recover, there is by degrees a Separation made between the corrupt and the sound Flesh, by means of Suppuration. Those pestilential Vesicles are more or fewer, larger or less, at different Times, on the same Person; and there is scarce a Part of the Body but is subject to be infected by them, and they are seldom or never observ'd without Buboes.

The proximate Cause of a Carbuncle is, no doubt, a violent Inflammation excited in the Blood by the Virulence of the pestilential Contagion. The Consequence of this Inflammation is a sudden Corruption of the Part, or a Sphacelus; for there is no Generation and Maturation of Pus in this as in other Tumors, but all the corrupted inward Parts are immediately separated, and fall off: Or, in other Words, the adjacent Parts by degrees receive the Inflammation, and, unless sudden Death happens, are converted into a Suppuration, in which Case the Carbuncle is separated from the sound and living Flesh, and by degrees wholly ejected.

A Carbuncle is a very dangerous Disease, as Experience shews, and much worse than a Bubo, especially if the Pustules turn black or livid immediately after Eruption; for the Disorder is of a milder Nature, when the Pustules are at first red, and gradually become of a Lemon-colour. The worst are observ'd to be those which arise in the Face or Neck, on the Breast, or under the Arm-pits; for they almost constantly destroy the Patient. *Heister, Chirurg.*

There is another kind of Ulcer, which some call a Carbuncle, different from this above describ'd. *Van Swieten*, in his Commentary on *Boerhaave's Aphorisms*, thus describes it: A Carbuncle, he says, is a Name which our modern Surgeons give to an Ulcer, when after a violent, and commonly very painful Inflammation, there happens a Rupture of the Skin in several Places, and Fragments of the corrupted Panniculus adiposus are discharg'd at the Orifices.

Celsus, Lib. 2. Cap. 18. takes Notice of a Carbuncle on the Penis, which should seem to be a sort of *Chancre*; but his Description is not very distinct. *Ætius* and *Paulus Ægineta* likewise mention it.

There is no better Way of treating a Carbuncle than by immediate Application of an actual Caustery; nor need we be apprehensive of the Pain, for it has no Feeling, because the Flesh is dead; and we must continue to cauterize till the Pain be thoroughly felt in all Parts, after which the Ulcer is to be treated like other Burns: Thus, when corrosive Medicines have induc'd a Crust over the Part, the same, being duly separated from the living Flesh, draws with it all the corrupt Particles, so that the Sinus, being now freed from Impurities, may be heal'd with Incarnatives. If the Disease be only superficial, or seated on the Surface of the Skin, it may be cur'd by Corrosives alone, or, if Necessity requires, by cauterizing, which

which is to be more or less severe, in proportion to the Greatness of the Distemper; but whatever Remedy you apply, if thoroughly effectual, it will immediately separate the corrupted from the sound Parts.

And we may generally depend upon a Cure, if the corrupt Flesh falls off whenever the corrosive Medicine exerts its Virtue; but if this does not happen, and the Disease proves too strong for the Remedy, we must have speedy recourse to Cauterizing. In these Cases we must abstain from Food and Wine; but it is good to drink plentifully of Water. These Directions are to be observed with the greater Strictness, if the Disorder be attended with a Fever. *Celsus, Lib. 5. Cap. 28.*

The Cure is to begin with opening a Vein, if there be no Contra-indication; and Bleeding till the Patient faints, proves beneficial in this and the like Cases. As to the Part affected, the Inflammation seems to require Refrigerants, did not the Grossness and Malignity of the Humour potently resist Repellents; or were there no Danger, if they should prove successful, of diverting the Course of the peccant Humours inwards upon the noble Parts. However, the Afflux of the Humour is to be checked; for which End such Medicines are required, as being moderately repellent, are also digestive. Of this Nature are Cataplasms of Plantain; or boiled Lentils, mixed with soft Crums of Bread bak'd in the Oven, which has neither too much of the Bran, nor is wholly cleansed from it; for what is quite pure is subject to stick, and obstruct the Pores of the Skin; and the surfuraceous, or branny, is of too gross Parts. To the Ulcer we must apply some powerful Medicine; such as those of Andron, Pasion, or Polyidas, [*see them under their proper Articles*] which are to be dissolved in sweet Wine to a strigmentitious Consistence: The proper Wines for this Purpose are the Theriacum, or Scybelites; or for want of them Sapa, which we call Hephema [*see what these are under their proper Articles*]. Digestives and Suppuratives, which are usually apply'd to other Ulcers, are improper here; because they would augment the Putrefaction of the Part. But after Bleeding, it may be proper enough to scarify such kinds of Tumors, and to make the Incisions pretty deep, because of the Crassitude of the Humour. The Inflammation being removed, the Ulcer must be cicatrized by the same Means as other Ulcers. *Galen, M. M. Lib. 14. Cap. 10.*

Paulus Aegineta, after having transcribed the Method of Cure quoted above from *Galen*, goes on thus:

The Powder of Massalotes [*see the Word*] dry, or diluted with Passum, is to be used about the Ulcer; or the Root of Dracunculus, or of Birthwort, or the Juice of Silphium, may, any one of them, be used with Vinegar to anoint the Place. A Carbuncle, which appears like an Erysipelas, must be anointed with something adapted to that Disease. Those Parts which are suspected to suffer by Consent, are to be embrocated with Wine and Oil, in unwash'd Wool. When the Heat is allay'd, cephalic Cerates diluted, and spread upon Linen, are properly apply'd to the Carbuncle. If the Hardness continues, the *Emplastrum melinum Serapionis* [*see MELINUM*] must be apply'd; and we must endeavour to bring the Carbuncle, as soon as possible, to a Suppuration; for which End the Cataplasms, and other Medicines, must be changed, twice in the Day, and once in the Night. To eradicate a Carbuncle, and totally prevent its spreading, boil four Pomegranates in Vinegar, and when they are soft, spread them upon Linen, and apply them to the Place; when they are dry, moisten them with Vinegar. Suppuratives and Breakers of Carbuncles are old or young Walnut-kernels, the Leaves, Buds, and fresh and tender Nuts of the Cypress-tree, with Polenta, Raisins of the Sun stoned, dry'd Figs boiled in Wine, the Flowers of the yellow horned Poppy, the Juice of Silphium with Rue and a little Honey, and Tar mix'd with Raisins and Hogs Fat.

An excellent Receipt for a Carbuncle is as follows:

Take of Spuma Argenti, one Pound; old Oil, one Pound and an half; Orpiment, one Ounce: Boil the Spuma Argenti and the Oil together, till it will not stain; then taking it off, put in the Orpiment, and boil them again, till the Mixture becomes black; and beating it in a Mortar, use it spread upon Linen.

For Carbuncles, especially in the Eyelids, and also for Gangrenes, old Chironian Ulcers, strumous Swellings, and the Gout:

Take of Opium, Acacia, Misy torrefy'd, Squama Aëris, each two Drams; Copperas, one Dram; Seeds of Henbane, one Dram: Bruise them, and use them in Water. The Plaster called the Tetrasternum is also a good Remedy, with an Addition of a fifth Part Frankincense.

For a Carbuncle in the Pudenda:

Take of Chalcitis, Copperas, each eight Drams, twenty Grains; of Aphronitrum, two Drams: Bruise them, and

use them with Water. Sheeps-dung torrefy'd and Honey is also a good Remedy.

In *Alexandria* they make a Cataplasm of green Serapias, which is also called Orchis and Triorchis, and Crums of Bread, which they make use of for Carbuncles, and all crusted Sores. When the Crust is fallen off, the Cure is the same as for common Ulcers. *P. Aeginet. Lib. 4. Cap. 25.*

The Cure of a Carbuncle by internal Means, such as proper Diet and Medicines, must be regulated in the same manner as we have directed in the Case of a pestilential Bubo (*see BUBO*); for the principal Part of the Cure consists in keeping the Patient in a gentle and continual State of Perspiration, or under a very gentle Sweat.

The external Cure is directed principally with a View to accelerate, as much as possible, the Separation of the Carbuncle or corrupted Flesh from what is sound. Therefore some of our modern Surgeons immediately, and not without Success, betake themselves to Scarification, making frequent Incisions in the corrupted Part; by which means they evacuate the acrid and pestiferous Matter, together with the corrupted Blood and Sanies. Others only open the Pustules with the Scissars; and after Emission of the Sanies, make repeated Inunctions of the Carbuncle with warm camphorated Spirit of Wine, or Spirit of Wine in which Theriaca Andromachi has been digested; and then apply a maturing Cataplasm, such as the following:

Take of Honey, four Spoonfuls; Leaven, three Spoonfuls; two Yolks of Eggs; and half an Ounce of Soap: Mix them well together, and apply them warm: Or,

Take of Meal of Wheat or Rye, two Ounces, with half an Ounce of Vinegar: Boil them in Water or Butter-milk, and, making of them a Cataplasm, mix therewith an Ounce of Honey, and a Dram of Saffron; apply it warm, changing it very frequently.

The Cataplasms or Malagmas above recommended, are to be continually apply'd till the Carbuncle be separated from the sound or quick Part, and fall off; for it is better to resolve and loosen the Carbuncle from the other Parts by degrees, than to cut it out all at once. And there are not wanting Examples of such, as by an unseasonable Excision of the Flesh have killed their Patients; for we are taught by Observation, that the most exquisite Pains, and other very dangerous Symptoms, are the usual Consequences of this extraordinary and over-doing Remedy. However, when the greatest Part of the Carbuncle is loosen'd, and separated from the quick Flesh, the rest of it which remains unloosen'd, may be cut off with the Knife without much Danger.

When by too hasty an Excision, or else spontaneously, a bad Kind of luxuriant Flesh grows within, it will be necessary to exterminate it by some Corrosive, as *Unguentum Aegyptiacum*, or the *Unguentum fuscum Wurtzii*; or by what follows:

Take of Honey, two Spoonfuls; two Yolks of Eggs; burnt Alum powder'd, Gentian, Birthwort, each one Ounce: Mix them, and make them into an Ointment.

If the Inflammation, as is not unusual, inclines towards a Gangrene, it will be proper to apply the following Ointment:

Take of Oil of Wormwood, an Ounce and an half; Scordium, Flowers of Elder, Flowers of Chamomile, each one Handful; pure Water, two Pints and an half: Boil them well together; strain them, and instil therein six Ounces of the best Spirit of Wine, or camphorated Spirit; and two Ounces of Venice-treacle. Let this be apply'd in folded Linen Cloths or Bolsters to the Carbuncle, warm; and be very frequently repeated, till the Violence of the Inflammation be abated.

But in Cases where these bad Symptoms do not appear, it will not be improper, after separating the Carbuncle from the sound Flesh, to deterge the Ulcer with the *Unguentum fuscum Wurtzii*, or with some such Digestive as we have described under the Article BUBO. This Design ought to be executed with the greatest Care and Dexterity, lest any Part of the Poison remaining within, should lay a fresh Foundation for the Disorder. For this Reason we are to continue deterging the Ulcer, till the least Symptoms of the Plague are no longer to be discovered. After this the Wound is to be conglutinated like other Abscesses, especially by applying the Essence of Myrrh and Aloes upon Lint; as also the *Emplastrum de Lithargyro*, or others of a like Nature, till the Ulcer is entirely consolidated.

Some Surgeons, indeed, of distinguished Characters, maintain, that nothing is more effectual than the actual Cautery, either for the Extirpation or Cure of the Carbuncle; for they

forthwith order the mortified Flesh to be cauterized, till a Sense of Pain is excited in all the Parts contiguous, that no Remains of the Carbuncle may seem to be left. And *Hodges* informs us, that, during the Plague in *London*, he observ'd this to be the most expeditious Method of curing Carbuncles. But not only the Horror of the Patients, but also many other Circumstances, such as the Importance of the Parts affected, sometimes concur to render the Method of Cure by Cautery not only improper, but palpably absurd; and in these Cases the other Method of Cure is to be pursu'd.

The celebrated *Sylvius* is of Opinion, that the most expeditious Method of extirpating Carbuncles is, by anointing the adjacent Parts with Butter of Antimony; since, according to that Author, by its Means alone the Disorder is not only hinder'd from spreading, but also an Eschar is generated, which gradually divides the sound from the corrupted Part, and at last procures a total Separation. But the later Physicians, who have wrote upon the Plagues of *Vienna* and *Ratisbon*, have affirm'd, that Butter of Antimony is so far from being beneficial in the Cure of Carbuncles, that it rather induces a fatal Train of Symptoms, and for the most part procures the sudden Death of the Patient. *Battcherus*, however, in his *Loimographia Hassniensis*, agrees with *Sylvius*, and bestows very large Encomiums upon Butter of Antimony, as a Medicine of all others the best calculated for answering the Purpose. But notwithstanding the Character of these Authors, who have recommended the actual Cautery, and Butter of Antimony, for extirpating Carbuncles, I cannot forbear thinking, that the other Method is milder, safer, and consequently preferable. If, however, any one intends to use these Methods of Cure, he must remember to deterge and conglutinate the Wound, in a proper Manner. *Heister*.

CARBON humanum, in *Paracelsus*, according to *Schroder*, *Lib. 5. Class. 1. No 23.* signifies human Dung.

CARBONES Cæli. The Stars. *Rulandus. Johnson.*

CARBUNCULATIO, ἀρσάσις, properly signifies a Carbuncle incident to the Eye, and is described by the Author of the *Definitiones Medicæ*, ascribed to *Galen*, ἐλκος ἐσχαρῶδες μετὰ νομῆς, καὶ βούματος, καὶ πυρῶν, ἐν ὁφθαλμῷ καὶ πυρρῶν γινομένων, περὶ τὸ ἄλλο πᾶν σῶμα. ἐστὶ δὲ ὅτε περὶ ὀφθαλμοῦς. “A crusty, phagedenic Ulcer, attended with a Flux of Humours, and a Bubo, and sometimes with a Fever; and, among other Parts of the Body, incident to the Eye.” And *Paulus*, *Lib. 3. Cap. 22.* defines it to be a malignant crusty Ulcer, affecting sometimes the Ball of the Eye, sometimes the Eyelid, as well as any other Part of the Body.

CARBUNCULUS Rubinus, Offic. Worm. 103. *Schrod.* 329. *Mont. Exot.* 14. *Schw.* 390. *De Laet.* 11. *Calc. Mus.* 235. *Geoff. Prælect.* 83. *Charlt. Foss.* 37. *Rubinus verus*, *Boet.* 144. *Carbunculus*, *Kentm.* 50. *Carbunculus, sive Rubinus*, *Aldrov. Mus. Metall.* 957. **THE RUBY.**

It is a glittering diaphanous Gem, of a red Colour, and Proof against the File; the most beautiful are found in the Island of *Ceylon*.

They say, that being worn or drank it resists Poison, is a Preservative against the Pestilence, expels Sadness, restrains lascivious and evil Thoughts, prevents frightful Dreams, exhilarates the Mind, and preserves the Body in Health. *Schroder*.

It is preferib'd in Medicine in our Shops, but I know not how it comes to be omitted in the Catalogue of Simples. *Dale*.

CARCAPULI, *Park. J. B. C. B. Fructu Malo aureo æmulo coddam Pulli*, *H. M.* **THE INDIAN YELLOW ORANGE OF MALABAR.**

This is a tall spreading Tree, the Trunk as much in Compass as two Men together can incircle with their Arms; the Leaves stand by Pairs on the Sprays, at the Extremities of which appear flesh-colour'd and yellowish tetrapetalous Flowers, which are void of Smell, but of a sourish Taste. The Calyx consists of four pale concave Leaves; and the Fruit, which hangs by a Pedicle an Inch long, is big, round, and distinguish'd by eight, nine, or ten Extuberances like Ribs, with a small Head at the Top, striated in like manner with small Ribs; it is first green, then yellow, and when ripe whitish, and has an acid Sweetness of Taste; the Seeds are contained in the Middle of the Pulp, and are oblong, flattish, and of a dark azure Colour.

This Fruit, according to *Acosta*, as to Size and Shape, is like a Quince with the Rind taken off, and consists in like manner of grumous Parts, but not separable, as in the Quince; it is cover'd with a thin, light, and shining Rind. It is dry'd, and exported from *Malabar* to other Countries.

It is commonly eaten, and the Inhabitants commend it much for medicinal Uses; but it is most eminent for stopping a Flux of the Belly of what Kind soever, especially contracted by excessive Venery. The ripe Fruit is either eaten alone, or its Juice, or the Powder of it dry'd, is taken in sour Milk, mixed with which, and boiled Rice, it mightily recovers a lost Appetite. The Juice and Powder aforesaid are efficacious in Specks and Cataracts of the Eyes. The Powder is much used by Mid-

wives for expelling the Afterbirth, for increasing the Purgations, and to procure Plenty of Milk; and they say it is very serviceable in facilitating the Birth.

CARCAPULI Linschotani. *Carcapuli de Bry.*

C. Bauhine confounds this with the preceding; but they differ in Flower and Fruit, though agreeing in other respects. The first bears an acid, sulcated, gold-coloured Fruit, as big as an Apple; this latter produces a round sweet Fruit, of the Bigness of a Cherry; the first by the Natives is called simply *Ghoraka*, the other *Kanna Ghoraka*; both afford Gum Gutta, but the *Kanna Goraka* the best. But this Gum Gutta, says *D. Syen*, must not be confounded with the common Gum Gutta, which, as *Bontius* assures us, is collected from a Plant which is near akin to the *Efula Indica*, and is called by the *Indians Lonam Cambodia*, because it grows plentifully in the Country of *Combodia*. *Raii Hist. Plant.* See **GUTTA GAMBA**.

CARCAROS, καρχαρος. A kind of Fever, which is attended with a Horror, or Shivering. See **QUERQUERA**.

CARCAX. A Species of Poppy, which has a Head large enough to contain a Pint and an half of Liqueur. *Gastellus from Hartman de Opto.*

CARCER, in *Paracelsus*, *Traët. 2. de Morb. Ament. C. 3.* signifies a Remedy proper to restrain the loose and disorderly Motions both of Body and Mind, as in curing *Choreas*; for Instance the *Chorea Sancti Viti*.

CARCHARIAS, καρχαρίας. The Fish called the *Canis marinus*, or Sea-dog. See **CANIS**.

CARCHARODONTA, καρχαρόδοντα, from καρχαρος, sharp, and ὀδὸν, a Tooth, sharp-toothed, is an Epithet, in *Galen*, *de Usu Partium*, *Lib. 8. Cap. 2.* apply'd to such Animals as have sharp and serrated Teeth, as the Lion and Bear among Quadrupeds, and the *Canis marinus*, or Sea-dog, among Fishes; for which Reason it is called *Carcharias*.

CARCHESIUM, καρχήσιον. *Foësius* thinks the Greek Word should rather be render'd *Carchesia*, which is the Latin Name for those Perforations at the Extremity of the Mast, through which the Ropes are transmitted. Thus *Lucilius*, in *Nonius*, says *Mali Carchesia summa*; and *Catullus* has almost the same Expression. *Galen*, in his *Exegesis*, expounds it to be the Top of the Mast where the Pulley is plac'd. *Athenæus*, *Pollux*, and *Hesychius*, give much the same Explication.

Carchesi, καρχήσιον, in *Galen*, *Com. 3. in Lib. de Art.* and in his *Exegesis*, is expounded the Ropes which are extended from the Top of the Mast, and support the Sails.

Carchesius Laqueus, καρχήσιον βέβρυχον, is the Name of a Bandage taken Notice of by *Galen*, *Cap. 3. in Lib. de Art.* of which there are two Sorts, called the single and the double *Carchesius Laqueus*, which are both described by *Oribasius*, in his Book *de Laqueis*, *Cap. 9. 10.*

Carchesium, καρχήσιον, is also a Cup, described by *Athenæus*, *Lib. 11.* and we meet with *Carchesia Bacchi Pocula*, in *Virgil*, *Lib. 5. Æneid.* and *Georg. Lib. 4.*

CARCHICHEC Turcarum, sive *primula Veris Constantinopolitana*, *Cornuti. Primula Veris Turcica Tradescanti, Flore purpureo*, *Parkin.* **BLUE PRIMROSE.**

The Leaves are like those of the common Sort, only softer; from the Midst of them arise a Multitude of Pedicles, about an Inch in Length, supporting greenish Calyces, striated with as many Sinuses as the succeeding Flower is to consist of Leaves, which are seldom above five, shaped like a Heart, and of a faint purple Colour, except at the Bottom, or Unguis, which is like a Ray of Gold shaded with Saffron. The Umbilicus, or Middle of the Flower, is stellated with five very effulgent Radiations. From the Centre of the Star rises the Pointal, of the same Colour. The Herb bears Flowers almost during the whole Year, which are succeeded by white Seeds like those of the white Poppy, and are inclosed in a thin Capsule.

Carchichec, with the *Turks*, signifies Snow-flower; which Name they give it on account of the Vivacity of its Flowers, which exalt themselves above the Snows in the Middle of Winter; they are of an infinite Variety of Colours, as Sky-coloured, of a faint or deep Purple, or Violet, Carnation, Iron-coloured, of a dead Pale, Vermilion, white, and many others, all owing to the Management of its Propagation by Seed.

It is hot and dry, and considerably astringent to the Taste. It is of good Effect in the Cure of atrabilious and pituitous Affections, and is very serviceable in putting a Stop to a Looseness, corroborating the Stomach, and by consequence the whole Intestines. *Raii Hist. Plant.*

Carchichec polyanthes is a Primrose of *Constantinople*, which bears upon one Stem a Multitude of Flowers, diffused in the manner of an Umbrella, and somewhat less than those of the preceding, but of the same Variety of Colours, and often double like the other. *Raii Hist. Plant.*

CARCINADÆ. A Name in *Actius*, *Tetrab. 1. Serm. 2. Cap. 139.* for a very small sort of Sea Fish, resembling Crabs, which he condemns as fetid and unsavoury, hard of Concoction, and of bad Juice.

CARCINETHRON. A Name in *Oribasius, Med. Coll. Lib. 12.* for the *Polygonum Mas*, or common Knot-grass.

CARCINODES, καρκινώδεις, from καρκίνος, a Cancer, and εἶδος, a Form or Likeness, a Tumor resembling a Cancer.

CARCINOS, CARCINOMA, καρκίνος, καρκινώδης ὄγκος, καρκίνωμα. A Cancer.

When black Bile settles in the Flesh, if it be of an acrimonious Quality, it corrodes the circumjacent Skin, and breaks out in an Ulcer; but if it be of a milder Nature, it generates a Cancer, without an Ulceration. *Galen. de Tum. præternat. Cap. 11.*

Cancerous Tumors are generated in all Parts of the Body, but mostly in the Breasts of Women whose natural Purgations are ceased, which, while under due Regulation, preserve a Woman in Health. All preternatural Tumors, therefore, of this Kind, are generated of a Superfluity of black Bile, of which we have spoken in our Treatise of *Natural Powers*, where we shew'd, that this Humour was generated in the Liver, in Sanguification, after the manner of Lees in Wine; but was purged by the Spleen, whose natural Aliment it was. And, a little after, he says, We have often observed, in the Breasts of Women, a Tumor very much resembling the Animal call'd a Crab (καρκίνος, Cancer); for as this Creature is furnish'd with Claws on both Sides of its Body, so, in this Disease, the Veins, which are extended from the Tumor, represent with it a Figure much like a Crab. *Galen. de Art. Curat. ad Glaucom, Lib. 2. Cap. 10.*

A Cancer is an unequal Tumor, with very elevated Edges, loathsome to Sight, somewhat livid, and painful, sometimes without an Ulcer, which Sort *Hippocrates* calls occult, κρυπτός, and, if it be chirurgically treated, it grows the worse. Sometimes it is attended with an Ulceration; for, being generated of black Bile, it is, for the most part, of a corrosive Quality. It rises in many Parts of the Body, but principally infests the Uterus and Breasts of Women, having Veins around it extended in manner of the Claws of a Crab, whence it took its Name [καρκίνος, Cancer, signifying a Crab]. *P. Æginet. Lib. 6. Cap. 45.*

A Cancer may be generated in most Parts of the Body, as in the Eyes, the Uterus, and other Places, but especially in the Breasts of Women, as being of a lax Contexture, and very susceptible of the grossest Matter. Cancers owe their Original to black Bile put in a State of Effervescence; and, if there be any thing of an acrid and corrosive Quality mix'd with this Humour, the Cancer is attended with an Ulceration. Cancers are blacker than other Inflammations, but not so hot. The Veins all around it are bloated, and distended in the manner of the Claws of a Crab, whence it has its Name Cancer (a Crab); or, as others will have it, because it adheres with such Obstinacy to the Part it seizes, that, like that Animal, it cannot, without great Difficulty, be separated from it. *P. Æginet. Lib. 4. Cap. 26.* transcrib'd almost verbatim by *Aëtius*.

καρκίνοι κρυπτοί, occult and secret Cancers, in *Hippocrat. Aphorism. 38. Lib. 6.* are either such as are not exulcerated, or such as are seated in the inner Parts of the Body; so *Galen* explains it in his Comment on that Place. By οἱ κρυπτοὶ καρκίνοι οἱ ἀποβύχιοι, "secret Cancers, which are deeply seated," *Lib. 2. Proærbet.* are meant such Cancers as are not exulcerated, and are profoundly seated in the Body; for Example, those which infest the Anus, Intestines, Uterus, the Breasts, and Palate. Opposite to these are, *ibid.* οἱ καρκίνοι οἱ κρυπτοὶ καὶ οἱ ἀκρυπτοί, "Cancers not ulcerated, and superficially seated." And this is *Galen's* Explication of the Passages above, in his Comment on the aforesaid Aphorism; tho' κρυπτός, in itself, signifies either not exulcerated, or deeply seated, as we first observed out of *Galen*.

καρκίνος κρυπτός, in *Galen, Lib. de atra Bile*, is a secret and occult Cancer, not exulcerated, but generated by a melancholy Juice, which has insinuated itself into the Habit of the Body, and is neither acrimonious, malignant, nor corrosive, so as to cause an Exulceration.

Philoxenus, in *Aëtius, Tetrab. 4. Lib. 4. Cap. 43.* says, that by κρυπτοὶ καρκίνοι are peculiarly meant those Cancers which infest the Uterus and Intestines; which *Paulus* also, *Lib. 3. Cap. 67.* seems to hint, when he, in some measure, appropriates the above-mention'd Aphorism to Cancers of the Uterus, tho' it may be understood of Cancers in general.

CARCINOMA, καρκίνωμα, is the same as καρκίνος, and defin'd, by the Author of the *Definitiones medicæ*, a malignant and very hard Tumor, with or without an Ulcer, and taking its Name from a Crab. And, again, he says, a *Carcinoma* in the Uterus is a Tumor without an Ulceration, unequal, and with very tumid Edges.

A *Carcinoma* principally infests the upper Parts, as the Face, Nostrils, Ears, Lips, and the Breasts of Women. It has its Original from the Liver or Spleen. There is a kind of pungent Sensation about the Part; and the Tumor is immoveable, unequal, and sometimes without Sensation. The Veins about it are inflated, and, as it were, retorted, of a pale or livid Co-

lour, and sometimes invisible. Some feel a Pain, if the Part be touch'd, others not; and sometimes the Place affected is harder or softer than in its natural State, without an Ulceration; and sometimes all the before-mention'd Symptoms attend an Ulcer of the Part. Sometimes it has nothing singular to distinguish it; and sometimes, by its Bulk and Asperity, it resembles what the *Greeks* call a *Condyloma* [κονδύλωμα]. The Colour of it is red, or like that of a Lentil. *Celsus, Lib. 5. Cap. 18.*

A *Carcinoma* is an Affection of the Cornea Tunica of the Eye, with a Pain and Tension, a Redness of the Tunics, accompany'd with a throbbing Pain, which reaches to the Temples, especially upon any Concussion. *P. Æginet. Lib. 3. Cap. 22.*

καρκίνωμα is used by *Hippocrates, Lib. 5. Epid.* where he says, καρκίνωμα πειρὶ τὸ στήθος ἐγένετο "She had a *Carcinoma* " in her Breast." And again, *Lib. 7. Epid.* he says, ὁ τὸ καρκίνωμα τὸ ἐν τῇ φάρυγγι καθὼς ὄγκος ἐγένετο ὅφ' ἡμῶν "One " who had a *Carcinoma* in the Fauces, was cured by our applying an actual Caustery to the Part."

CARCINODES CHOIRADES, καρκινώδεις χοιράδες, are stumous Swellings of a malignant Quality, which are painful to the Touch, and exasperated by Application of Medicines. *P. Æginet. Lib. 6. Cap. 35.* See *STRUMA*.

See that Part of the Article *BUBO*, which relates to a cancerous Bubo.

Before I begin the modern Accounts of a Cancer or *Carcinoma*, I must apprise the Reader, that he is to consider what follows as the Sequel of the Article *SCIRRHUS*.

Among all the Disorders incident to the human Body, none is more justly terrible than a Cancer; since it has not hitherto been known, that the Calamity has been remov'd without the Extirpation of the affected Parts: Nor is this Disorder only to be dreaded on account of its Obstinacy, which is Proof against all Medicines; but it is also terrible on account of the racking Pains, and intolerable Putrefaction, by which it gradually preys on the Body, whilst the Patient is yet alive. To all these unhappy Circumstances we may add the Duration of the Pains, which, for several Months, and sometimes for several Years, afflict the miserable Patients, before Death, that last, but ungrateful Remedy to all the Calamities of human Life, puts an End to their wretched State, by the most intolerable Agonies; for, unless they die of an Hæmorrhage, in consequence of the larger Blood-vessels being corroded, they lead a long and miserable Life before the Disorder spreads thro' the whole Body, and procures them a grateful Relief, by placing them beyond the Reach of Pain.

In a Scirrhus, if the stagnating Matter, which forms it, being increased by its Duration, begins to move; or if the Humours in the adjacent Parts are moved in such a manner, as to inflame the Vessels situated on its Margin; it becomes malignant, and is then call'd Cancer, or *Carcinoma*.

This Disorder is by the *Latins* call'd *Cancer*, and by the *Greeks* καρκίνος, and καρκίνωμα. *Galen* thinks, that this Name was affix'd to it on account of a certain Resemblance it bore to the Animal we commonly call a Crab. As this Animal stretches out its Claws on both Sides, so Veins, turgid with black Blood, are every-where sent off from that Species of Tumor we call a Cancer. *Paulus Ægineta*, in the twenty-sixth Chapter of his fourth Book, adds, that a Cancer firmly adheres to the Parts it affects, just as a Crab securely holds its Prey in its Claws; and thus he found out another Instance of Similitude between them. 'Tis plain, that *Celsus*, under the Name *Cancer*, describ'd a Gangrene and Sphacelus: But he used the Word *Carcinoma* to denote that Disorder which modern Physicians and Surgeons call *Cancer* and *Carcinoma* promiscuously; for though, in the twenty-eighth Chapter of *Celsus's* fifth Book, the Description of the *Carcinoma* is somewhat obscure, yet, from his Words, it may be known, that he gave this Name to the Disorder we now speak of; for he affirms, that it principally happen'd about the Face, the Nose, the Ears, the Lips, and Breasts of Women; and that the Veins about it were, as it were, retorted. He also took notice of its uncommon Malignity, and of its being easily irritated, when it was cut or cauteriz'd. He also asserted, that, in this Case, Medicine was never serviceable to any one; since, when cauteriz'd, they were forthwith exasperated, and augmented till they became mortal; and, when extirpated, they return'd, after a Cicatrix had been form'd, and proved the Cause of the Patient's Death: From all which Circumstances it is sufficiently evident, that, under the Name *Carcinoma*, *Celsus* describ'd what the Moderns call *Cancer*.

A Cancer is subsequent to a Scirrhus, or rather a Scirrhus is chang'd into a Cancer. But it is another Question, Whether a Cancer never arises in the Body, without a previous Scirrhus. It will appear, by what shall be hereafter said, that this Disorder may be found in many Parts of the Body, accompany'd with equal Malignity, and the same direful Effects, tho' no Scirrhus has preceded. But we must consider, how a Scirrhus passes

passes into a Cancer, and by what Signs it is distinguish'd from that Disorder: By the common Consent of all Physicians, a Scirrhus is said to be a *hard Tumor, without Pain*: But when a Scirrhus is degenerating into a Cancer, the Tumor indeed remains; but then Pain, which was before absent, begins to rack the Patient. Pain, therefore, is the Sign by which a Cancer is distinguish'd from a Scirrhus. But since there is a great Difference between a Scirrhus beginning to degenerate into a Cancer, and an exulcerated Cancer; and since this Disorder passes thro' several Degrees before it arrives at its highest Malignity, Authors have, for this Reason, sometimes retain'd the Name of Scirrhus, even after lancinating Pains began to rack the Patient. But in this State of the Disorder, for the sake of Distinction, it is better to call it an occult or latent Cancer than a Scirrhus.

A Scirrhus has for its Cause whatever can inspissate, coagulate, or dry the Juice prepar'd by the Glands, in the secretory or excretory Ducts or in the Follicles which receive it. Whilst, at the same time, the intricate Structure of the Vessels which constitute the Glands, or the Humour lodged in the Follicles, as it were, without the Laws of the Circulation, hinder the Impetus of the arterial Blood from acting upon these obstructed Vessels or Receptacles, and upon the obstructing Matter, in such a manner, that the Concretions may be resolved; or that such Concretions as can no longer obey the Laws of the Circulation, may be separated by a gentle Suppuration. The coagulated Juice, then, remains in the Vessels, or in the Cavities of the Follicles, whose Sides consist of Vessels of all manner of Kinds; and it may remain long in these without undergoing any Change, or without any considerable Detriment to the Patient, as is sufficiently obvious from Instances which daily occur. The Function of the scirrhus Part alone is injur'd, or sometimes the Action of those Parts, which are compress'd by the adjacent Scirrhus, is disturb'd: But when, by any Cause, the Motion of the Humours is increased thro' the live and pervious Vessels, which lie contiguous to the Substance of the Scirrhus, 'tis evident, that an Inflammation may easily be here produced; since these Vessels, compress'd and render'd narrow by the scirrhus Concretion, cannot freely transmit the Humours when put in Motion, but are entirely obstructed by an Acceleration of the Circulation. But the Inflammation arising here will be follow'd with all the Consequences of an Inflammation, which are Pain, a violent Attrition, and the different Degrees of Heat produced by it. Now 'tis demonstrated, under the Article *ALCALI*, that an Acceleration of the Motion of the Humours, and an Increase of Heat, highly dispose to Putrefaction. The scirrhus Concretion, therefore, which has hitherto remain'd mild, and like an inert Body, in the infarcted Vessels or Receptacles, will begin to putrefy, and acquire a greater Acrimony: Thus it will become capable of irritating and corroding the Parts in which it is contain'd. In this State, therefore, 'tis no Wonder, that a Pain should be produced, which, as we have already said, distinguishes a Cancer from a Scirrhus. The same Effect will be produced, if the adjacent Vessels should become inflam'd, in consequence of their being press'd by the contiguous Scirrhus; for, in this Case, 'tis obvious, that the like Disorder will soon be produced in the Scirrhus itself: Hence it so often happens, that a Scirrhus is chang'd so suddenly into a Cancer in the Breasts of those Women who gain their Livings by Working; for, in this Case, the hard Scirrhus is press'd against the neighbouring Vessels, which by that means are inflam'd; and thus the Scirrhus soon degenerates into a Cancer. When, therefore, a Scirrhus, becoming gradually larger, compresses the adjacent Parts, a Cancer will soon be produced. But, besides, the scirrhus Concretion itself may, in Process of Time, become acrid spontaneously, and produce the same Train of cruel Symptoms; for, in the Article *SCIRRHUS*, it is shewn, that the atrabilarious Matter of the Blood greatly promotes the Production of scirrhus Tumors. The Antients deduced the Origin of Scirrhuses almost entirely from this Cause: Accordingly their whole Intention of Cure, in treating a Scirrhus, was to resolve and evacuate this Matter from the Body.

But it will appear, from what is said under the Article *MELANCHOLIA*, that this atrabilarious Humour, which is almost of the Consistence of Pitch, may, by its long Stay and Stagnation, become acrid and corrosive, in consequence of which it will produce the most terrible Symptoms. The same Accident may, therefore, happen in a Scirrhus, and more especially in Men of atrabilarious Constitutions: Thus it may become malignant, or be chang'd into a Cancer, by its Age alone, without the Concurrence of any other Cause whatever.

In a Cancer, the Degree of the neighbouring Inflammation, the Excess of putrid Acrimony in the Part affected, the Importance of the Part, the Number and Condition of the Glands connected with it, and the whole Constitution, determine the Degrees of Malignity in the first State.

When the Scirrhus first begins to degenerate into a Cancer, it is then said to be malignant, and very deservedly, on account

of the terrible Symptoms which afterwards ensue: But this Malignity is greater or less, and sooner or later arrives at its worst State, according to the various Conditions following.

As for the Degrees of the neighbouring Inflammation, a slight Erysipelas, or gentle Inflammation in the Neighbourhood of the Scirrhus, or in its Integuments, may be often carried off by a seasonable Application of a Plaister, in which Lead is an Ingredient; or by Vinegar of Litharge, diluted with a large Quantity of Water, and other Things of a like Nature: Thus the Scirrhus may be hinder'd from degenerating soon into a Cancer. But when a violent Inflammation appears either in the Integuments of the Scirrhus, or in the adjacent Parts, the most formidable Symptoms are soon to be look'd for.

As for the Excess of putrid Acrimony in the Part affected, the principal Malignity of a Cancer consists in this, that the Substance of the Scirrhus, as yet remaining in the live Vessels or Receptacles, becomes putrid, and, by a virulent Sanies, corrodes and exulcerates all the adjacent Parts. But, even in exulcerated Cancers, the Disorder does not immediately arrive at this last Stage of Malignity, but proceeds to it gradually. The greater, therefore, the Putrefaction is, the more terrible all the Symptoms will be. In open Cancers, the Degrees of the Putrefaction are sufficiently known, from the fetid Smell of the discharg'd Sanies, and the Corrosion of the adjacent Parts: But in occult or latent Cancers, the Itching, the Heat, the lancinating Pains, and the sudden Increase of the scirrhus Tumor, indicate various Degrees of Putrefaction now begun.

The Importance of the Part is likewise a Circumstance of great moment; for if the Pancreas, for Instance, the Stomach, the Liver, or the Intestines, are affected with a Cancer, far more cruel Symptoms must ensue, and the Prognostic must be far more unfavourable, than when this Disorder is only lodged in the Breasts.

As for the Number and Condition of the Glands connected with the Part affected, a single Cancer may be longer tolerable, and afflict the Patient less, than when the same Disorder seizes different Parts of the Body. The Disease must, of consequence, be worse when it seizes such a Part, as, by propagating the Disorder, may affect the adjacent Glands. It scarce ever happens, that a Scirrhus, so considerable as already to threaten a Cancer, is long lodged in the Breast, but the axillary Glands of the same Side begin to grow scirrhus, as is obvious from daily Experience. It also frequently happens, that, when one Breast has been long scirrhus, the other becomes in like manner affected: And, since there is so great an Affinity and Communication between the Breasts and Uterus, this latter often begins to labour under the like Disorder. The celebrated *Boerhaave* saw a melancholy Case, which confirms this: A Cancer, not yet exulcerated, was extirpated from the Right Breast of a Lady of Distinction. A Year after, another of a like Nature was cut out of her Left Breast: But she afterwards languish'd, and had all the Signs of a Cancer in the Uterus; till at last, being rack'd with the most violent Pains, she died. In the History of a Scirrhus it is observed, that it is evident, from the Observations of Physicians, that, when all the Glands of the Neck are become indurated, those of the Mesentery are in like manner affected: 'Tis therefore in vain to attempt a Cure, in Cases of this Nature, since the Disorder is convey'd to the communicating Glands.

As to the Constitution of the Patient, the atrabilarious Constitution is subject to produce scirrhus Tumors, as is observed under the Article *SCIRRHUS*: The same Constitution may, therefore, increase and augment a Scirrhus already formed; but a Scirrhus is, by an Increase of its Bulk, changed into a Cancer, as we have already observed. 'Tis, therefore, evident, that, when a Scirrhus happens in these dry, emaciated, and atrabilarious Constitutions, there is the greatest Dread of its being changed into a Cancer, especially if this atrabilarious Juice, which predominates in the Blood, begins to be resolved, and become acrid; for, as we shall afterwards shew, every acrid Substance, mixing with a Scirrhus, converts it into a Cancer. The same Observation will hold good in Cases where a putrid Scurvy afflicts the Patient; for, in such Constitutions, Scirrhuses generally soon become malignant.

If a Cancer is confined within its own Membranes, it is called an occult Cancer; but, if these are broke and ulcerated, it is called a manifest, or ulcerated Cancer; the last being the Offspring of the first.

A Scirrhus is a hard Tumor, unaccompanied with Pain, and situated in a glandular Part; but when a Titillation, Itching, Pain, and Heat, are perceived in this Tumor, it is no longer call'd Scirrhus, but assumes the Name of Cancer. So long as the Integuments of the Cancer are not corroded, it is called a latent or occult Cancer; but when it has degenerated to that Degree of Malignity, as to corrode the Integuments, and discharge a Sanies, it is then denominated a manifest or ulcerated Cancer. *Aëtius*, in *Tetrabibl. 4. Serm. 4. Cap. 43.* informs us, that *Philoxenus* called that a latent or occult Cancer, which was lodg'd in such Parts of the Body as were hid from our Sight, such

such as the Uterus or Intestines. Others, after him, have advanced the same thing: But *Hippocrates* seems to have been of a different Opinion; for, as may be seen under the Article SCIRRHUS, he calls this Disorder, when situated in the Breasts, an occult Cancer; for, when he treats of a Retention of the menstrual Discharges, in consequence of a Distortion of the Mouth of the Womb, he says, that the retained Menstrua are convey'd to the Breasts, and delude Women with a specious Appearance of Pregnancy: And he afterwards adds these Words: "And in the Breasts hard Tubercles arise, some of which are large, and others small. These Tumors never come to Suppuration, but always become harder, till at last occult Cancers are produced from them." *Hippoc. de Morb. Mulier. Lib. 2. Cap. 20.* Hence 'tis sufficiently evident, that *Hippocrates* distinguished a Scirrhus from an occult Cancer, and that he gave this last Name to the Disorder, tho' lodged in the external Parts of the Body. An occult Cancer is always previous to one of the ulcerated Kind, as is evident from what has been said.

The Cause of a Cancer is, whatever is capable of forming a Scirrhus; an Acrimony of any kind introduced into a Scirrhus; a Change induc'd in the Circulation of the Blood, from a Retention of the menstrual Flux, the Hæmorrhoids, or any habitual Hæmorrhage; Sterility; Celibacy; the Age in which Women cease to be prolific, generally from forty-five to fifty; an austere, acrid, and hot Diet; Melancholy and bilious Affections of the Mind; any external Irritation, whether by Motion, Heat, or Acrimony, or by emollient, suppurating, caustic, or vesicating Applications; or internal Remedies producing the same Effects.

We now come to treat of the Causes by which a Scirrhus, which is unattended with Pain, is chang'd first into an occult, and then into an ulcerated Cancer. Every Cause, therefore, which contributed to the Production of the Scirrhus, may be considered as a remote Cause of the Cancer; but this Cause, continuing to act, may increase the Scirrhus, and so change it into a Cancer.

As to Acrimony introduc'd into the Scirrhus, whether the Matter of the Scirrhus itself is, in Process of Time, converted into an acrimonious Substance, and corrupted; or whether, by Diseases, the mild Nature of the sound Humours is perverted and depraved; the Scirrhus, which before was free from Pain, will be irritated, and degenerate into a Cancer. The same Effect will be produc'd, if acrid Substances, which cannot be corrected by the Action of the Vessels and Intestines, are used as Food: Of this kind are most Spices, but more especially the acrid Bulbs of Onions and Garlick; for the Sweat and Urine of those who use these Roots daily smell of them. Hence 'tis obvious how treacherous a Disorder a Scirrhus, even of the slightest kind, is; for tho' all acrid Substances were abstained from, yet no one can at all times secure himself against the Attacks of epidemical Diseases, which often rage, and by which the mild Nature of the Humours is so often changed: It also happens, that acrid Substances prove hurtful by increasing the Velocity of the Circulation, by which alone a Scirrhus may be converted into a Cancer, as we have already observ'd. Many Instances evince how dangerous the Use of acrid Substances is in Cases of this Nature, but one is sufficient for our Purpose. *Hildanus*, in his *Observ. Chirurg. Cent. 1. Observ. 1.* gives us an Account of a Gentleman of Distinction, whose Eye, after an Ophthalmy, broke, and discharg'd the Humours: Upon this the Eye-lids, collapsing, grew together. In this Condition he lived fourteen Years, without the Appearance of any malignant Symptom: But as at that time he wantonly indulged himself in the Use of Wine, and greedily eat Foods of hard Digestion, Spices, Onions, Garlick, Leeks, and Radishes, the Disorder, which had been latent so long, broke out on the optic Nerve; for the closed Eye-lids began gradually to be opened, and there grew from the Bottom of the Orbit a Tumor, which was hard, livid, malignant, and at last became a monstrous Spectacle, by rising without the Eye-lids as large as a Goose's Egg. *Hildanus*, however, successfully cut this cancerous Tumor out of the very Bottom of the Orbit, and cur'd the Patient. For this Reason *Galen*, in his *Metb. Medend. Lib. 2. Cap. 12.* when specifying the Aliments proper for those afflicted with Cancers, recommends Cremor of Ptisan, Whey, the softest Pot-herbs, Mallows, Arrach, Blite, and Rock-fishes.

As to a Change induc'd in the Circulation of the Blood from a Retention of the menstrual Flux, the Hæmorrhoids, or any habitual Hæmorrhage, the Reader may consult the Article SCIRRHUS; for there 'tis evident, not only from the Authority of *Hippocrates*, but also from the Observations of the best Authors, that scirrhus Tumors have not only been produced by an Obstruction of these accustomed Evacuations, but also that Scirrhuses, when they have been formed before, have, in consequence of this Accident, soon degenerated into Cancers. Scirrhus Tumors lodged in the Breasts, or about the Uterus,

are more considerably irritated by a Suppression of the Menfes than by any other Cause whatever.

As to Sterility, under the Article SCIRRHUS, where the Effects of a Scirrhus, formed in various Parts of the Body, are enumerated, it is observed, that Sterility is often produced by a Scirrhus in the genital Parts of Women; and, so far as appears from the Observations of Physicians, it seems to be one of the most common and frequent Causes of Sterility. In barren Women, therefore, Physicians justly suspect latent scirrhus Tumors, which, by their Duration and Increase, generally degenerate into Cancers. Besides, during the Time of Gestation, when all the Vessels which constitute the Substance of the Uterus are so much dilated, it often happens, that the beginning Obstructions are thus open'd, in consequence of the Capacities of the Vessels being enlarged; or, at least, that the Vessels of the Uterus are so disposed, as afterwards to transmit the Humors more freely. For this Reason Pregnancy has so often prov'd beneficial to Women, before labouring under Irregularities and Suppressions of the Menfes.

As to Celibacy, and that Age in which Women cease to be prolific, which is generally from forty-five to fifty, 'tis evident, from various Instances, that these contribute to the Production of Cancers; for, as is observed under the Article SCIRRHUS, *Dionis* remarks, that a fourth Part of such Women as are afflicted with Cancers, are seized with this Disorder between the forty-fifth and fiftieth Year of their Age; and he adds, that he has most frequently observed Nuns seized with this Disorder. This also is attested by *Vesalius*, in *Chirurg. Magn. Lib. 5. Cap. 16.*

As to austere, acrid, and hot Diet, we have already observed, that an atrabilious Matter often contributes to the Production of scirrhus Tumors. It is also obvious, from what was there said, that Scirrhuses are increased, and disposed to the Malignity of a Cancer by it. All Substances, therefore, which increase the atrabilious Juice in the Blood, or which render it more acrid by a new Accession of Heat and Motion, must in these Cases be highly prejudicial. But, as is observed under the Article MELANCHOLIA, austere, dry, hard, earthy Aliments, together with great Rest, and Inactivity of Body, generate an atrabilious Juice in the Blood, and, consequently, must increase the Causes of a Scirrhus, and the subsequent Cancer. All acrid hot Substances are also to be abstained from, because, as we observed before, they prove hurtful by increasing the Motion of the Humours.

As to melancholy and bilious Affections of the Mind, when Men of high and generous Tempers entertain a deep and troublesome Sense of Injuries done them, and boundlessly indulge themselves in Sorrow, they generally fall into a deplorable Melancholy, and at last die, after having struggled with the most terrible chronical Disorders. 'Tis, therefore, no Wonder, that, by this means, scirrhus Tumors should be generated where they were not before; and that, where they were, they should be converted into Cancers; since the atrabilious Habit of Body, produced by these melancholy Affections of Mind, is very subject to generate these Disorders. But Sorrow, which may be justly called a bilious Affection, is highly prejudicial to scirrhus Tumors; for, whilst Sorrow is excessively indulg'd, a great Heat is excited in the Body, the Motion of the Humours is increased, a violent Fever is often brought on, and the whole Body swells, and becomes red: Hence, in consequence of the increased Motion, the Scirrhus is in Danger of degenerating into a Cancer.

As to an external Irritation, whether by Motion, Heat, or Acrimony, all these, under whatever Denomination they may come, are always prejudicial in these Cases; for no prudent Surgeon will attempt the Cure of a Scirrhus which is confirm'd, and not capable of being resolv'd by any other Method than Extirpation. But where this cannot be attempted, the only remaining Means of Safety is, to keep the Scirrhus as long as possible from undergoing a Change; for every Change of such a Scirrhus is for the worse. Where there are any Hopes of a Resolution left, Friction is an excellent Remedy; but it soon changes a malignant Scirrhus into a Cancer. Heat, by dissipating the most moveable Parts, will render the Scirrhus intolerably hard, or promote a Putrefaction, so much to be dreaded in this Case. How hurtful emollient, suppurating, and corrosive Medicines are, is observed under the Article SCIRRHUS. Hence it is a general practical Rule, in the Cure of such a Scirrhus, to exhibit nothing internally which can either augment the Motion, or the Heat; and to apply nothing externally which can irritate the Scirrhus. A soft Piece of Leather, or a Plaster in which Lead is an Ingredient, in order to prevent the Attrition of the Clothes, are the most proper Applications.

The Parts subject to a Cancer are the same as those affected by a Scirrhus.

Since a Cancer generally arises from a Scirrhus, it is sufficiently evident, that it must possess the same Place. The Observations of Physicians seem, however, to evince, that a Disorder, entirely

tirely similar to a Cancer, may be produced in some Parts of the Body, tho' no Scirrhus preceded: In the Lips, for Instance, when that thin Membrane which covers their Surface is either fissur'd by the Cold, or lacerated by any other Cause, a fungous Tumor begins to arise, which is often pretty soft to the Touch, which, gradually increasing, is extended to a large Bulk, and which, with respect to its Pain, the malign Ichor discharg'd, the Corrosion of the adjacent Parts, the Hemorrhage, and its rebellious Nature against all Medicines, in every respect resembles a true Cancer. This Tumor, unless seasonably extirpated, preys upon all the adjacent Parts, just as an ulcerated Cancer does. In the Tongue likewise the nervous Papillæ, divested of their restraining Integuments, expand themselves into a fungous Mass, which degenerates into the same Degree of Malignity, as is obvious from many deplorable Instances. In the human Penis the like terrible Depravations of the nervous Papillæ are also observ'd: Memorable Instances of this Nature are to be met with in *Hildanus*, who, in *Observ. Chirurg. Cent. 3. Observ. 88.* gives us an Account of a Smith, who, from his Infancy, had a Wart on the Glans of his Penis, not exceeding the Bulk of a Lentil, and which he bore without any great Trouble so long as he was unmarried; but, after he entered into a matrimonial State, the Pain of it became so violent and uninterrupted, that he was obliged to abstain from the Embraces of his Wife for the Space of thirteen Years. In Process of Time the Wart degenerated into a monstrous Cancer, as large as the Head of a new-born Child. His whole Penis was transform'd into a fleshy, rough, and livid Mass, corroded here-and-there with Ulcers, thro' which his Urine was discharg'd. The Smell of the Part affected was so highly fetid, that his Friends and Acquaintance could not come near him. When, after using many Remedies to no Purpose, he was by all concluded to be past Recovery, *Hildanus* amputated his entire Penis, and cured him so effectually, that he became robust, worked at his Employment, and lived ten Years after the Operation. See AMPUTATIO. But 'tis obvious from Anatomy, that in the Tongue, the Lips, and the Glans Penis, there are a prodigious Number of nervous Papillæ, which, when deprived of the Membrane which covers them, are highly sensible of Pain; and these Papillæ seem to degenerate into these terrible Disorders most frequently in the Places now mentioned, and others of a like Nature, where they are only cover'd with a tender Membrane. Nor have Disorders of this kind been only observed to happen in these Parts, but also in others cover'd with the Skin. Accordingly *Van Swieten* informs us, that in an adult Virgin he saw a pretty large Wart, which she had on her Back from her Infancy, by the Attrition of her Stays, which were made of Whale-bone, so increased as to degenerate into a Cancer; but, as it hung by a narrow Neck, the Surgeon apply'd a Thread tightly about it, by which means the Wart soon dropt off, upon which he apply'd Lapis Infernalis to its Root. But soon after a large and malignant Fungus arose, and the adjacent Skin became indurated; and when the Surgeon intended the Extirpation of this terrible Disorder, the Patient was seized with another Disease, of which she died. The same Author informs us, that, in consequence of a Surgeon's rashly paring the Nail of a Country Girl's great Toe, and wounding the tender nervous Pulp situated there, he saw a like Fungus arise; and whilst the same Surgeon attempted to consume it with Corrosives, he so irritated it, that it degenerated into a monstrous Cancer, which they were afterwards forced to extirpate. Now, if any one should assert, that the harder Warts, which generally arise in Parts covered with Skin, may be comprehended under the general Distinction of a Scirrhus, yet it may be answered, that, in the Lips and Tongue, soft Funguses often arise, which, however, are not of a less malignant Nature. Perhaps Disorders of this kind, arising from Depravations of the nervous Papillæ, may, for the sake of Distinction, be properly called fungous Cancers.

But since, from the Injections of the celebrated *Ruyseh*, it is certain, that the nervous Papillæ consist not only of a nervous Pulp, but also of a pretty large Number of small Blood-vessels, all these degenerate together, and are increased in Bulk. Hence it is that dangerous Hemorrhages so often happen in consequence of the imprudent Extirpation of malignant Warts. Nor is it improbable, that the Substance of the Nerves, properly so called, degenerates in this manner also; for the highly acute Pain, both in these fungous Cancers, and in a Scirrhus when degenerating into a Cancer, demonstrates, that the Nerves distributed thro' this Mass remain alive. And, from what is said under the Article CAPUT, it is sufficiently evident, how easily the Substance of the Brain, when divested of the Cranium, and its restraining Membranes, rises in a fungous Mass. The Nerves distributed to various Parts of the Body are defended and confined by pretty thick Coats; but when, after having laid aside these, their soft Substance is more unfolded, as in the Tongue, for Instance, the Glans Penis, and the internal Surface of the Eye-lids, they are restrained by a Membrane which covers them: When this Membrane is corroded, or injured by any Cause, such fungous Excrescences arise. 'Tis,

therefore, necessary, that Physicians and Surgeons should know, that a Cancer is often to be dreaded, tho' no Scirrhus preceded it.

An occult Cancer is known to be formed, when, after the Signs of a preceding Scirrhus, enumerated under that Article, a Titillation, Itching, Heat, a lancinating, burning, pungent Pain are perceived; when the Colour of the Part becomes reddish, red, purple, bluish, livid, or black; when it feels considerably hard, ragged, and rough, with a rising Apex; when the Tumor increases; and when the adjacent Blood-vessels become tumid, knotted, varicose, thick, and black.

The Signs by which a Scirrhus is known are laid down under the Article SCIRRHUS; but that a Scirrhus may become a Cancer, and that a Cancer may, when formed, be known and distinguish'd from a Scirrhus, some new Symptoms, which were before absent, must appear. A Scirrhus, then, is never suddenly converted into the worst of Cancers, but, changing gradually, degenerates into higher and higher Degrees of Malignity. The Changes, therefore, which happen to a Scirrhus, are successive, and are here enumerated in the Order in which they generally follow each other. An ulcerated Cancer, or even an occult Cancer, when just about to be changed into one of the ulcerated Kind, are sufficiently known by every-body; but, when a Scirrhus first begins to afford Signs of its degenerating into a worse State, it seems somewhat more difficult to know it. *Galen*, when treating of this Disorder, in *Method. Lib. 14. Cap. 9.* gives a Caution with respect to this: "For," says he, "where all the Symptoms are violent, no-body is at a Loss what Appellation to give the Disorder; and all unanimously agree to call Indispositions of this Nature by the common Name Cancer. But it is reasonable to think, that a beginning Cancer may not be known by every one; just as in Agriculture, Roots, when first beginning to appear above the Ground, are only known by those who are thoroughly skill'd in them." For since a Scirrhus is defined a hard Tumor unattended with Pain, it may retain that Name so long as no Pain is perceiv'd; but when a Titillation and Itching begin to arise, it then degenerates from its easy State, nor does it as yet deserve the Name of a Cancer properly so call'd, tho' it will soon be changed into that Disorder. But tho' there were any Doubt remaining with respect to the Denomination of this Disorder at the time a Scirrhus is degenerating into a Cancer, yet this Doubt will lay no Foundation for an Error in the Method of Cure, since both an inveterate Scirrhus, and a beginning Cancer, require the same Remedy, which is Extirpation, or the Use of such Medicines as will alleviate the new Symptoms, prevent future ones, preserve the incurable Disorder in the same State, and prevent its degenerating into a worse. That a Scirrhus is degenerating into a Cancer, may be known by the following Signs, as is said above.

By Titillation and Itching.

This, in inveterate scirrhus Tumors, is a bad Sign, and indicates, that the Nerves distributed thro' the Substance of the Scirrhus are either not sufficiently tense, or else that they are irritated; but soon after, the Distention of the Nerves being increased to such a Degree as to threaten their Destruction, the Itching is succeeded by Pain, a Sign, as we have before observ'd, that the Scirrhus is changed into a Cancer. The Danger of this Symptom is increased by the Patient's being oblig'd, contrary to his Inclinations, to scratch the itching Part, by which means the Malignity of the cancerous Scirrhus is augmented, since any external Irritation, as was before observed, is sufficient to change a Scirrhus into a Cancer. And as the ignorant Vulgar are persuaded, that an Itching, in Disorders of this kind, is the Sign of a beginning Cure, they are often overjoy'd when the greatest of Evils, a Cancer, is just approaching. Thus *Van Swieten* tells us, that he saw an impudent Mountebank congratulate a miserable Woman, when she perceived such an Itching in an incurable Scirrhus, on which he had laid a Plaster composed of very hot Ingredients; but, a few Weeks after, a highly malignant ulcerated Cancer miserably prey'd upon the whole Breast, and all the adjacent Parts. But, tho' skillful Physicians and Surgeons unanimously pronounce these Disorders incurable, yet the Patients, notwithstanding all the Cautions they can receive to the contrary, listen to the vain Boastings of these Villains, since it is natural for the human Mind to be easily persuaded of the Truth of what it earnestly desires.

By the Heat and Redness.

So long as a Scirrhus is benign, it is of the same Colour, and the same Degree of Warmness, with the adjacent Skin. When Heat and Redness, therefore, happen, the worst is to be dreaded; for these are Signs, that an Inflammation is begun in the live Vessels distributed thro' the Substance of the Scirrhus, or, at least, in the Integuments of the Scirrhus, and the adjacent Parts. For it is obvious, from what is said under the Article INFLAMMATIO, that Redness and Heat are justly to be classed among the

the Effects of Inflammation. And we have observ'd before, that, when the Redness and Heat are increas'd, the Scirrhus degenerates into a Cancer: The Danger is increas'd by this Circumstance; that the greater Degree of Heat disposes to Putrefaction, as has been taken Notice of under the Article ALKALI. It has been also observ'd, under the same Article, that the Putrefaction begun creates an uneasy Sensation of Heat: Heat, therefore, perceiv'd in a Scirrhus, either denotes a Putrefaction already begun, or indicates, that it will soon happen: Hence 'tis, in these Cases, always a dangerous Symptom.

By a lancinating, burning, and pungent Pain.

This Sign, as we have before observed, distinguishes an occult Cancer from a Scirrhus. First, Pains are perceived, which are not of the continued Kind, but only seize by Intervals, and suddenly go off, just as if a sharp Lancet were suddenly thrust through the Scirrhus. It often happens, that when Scirrhuses are not irritated by the Application of preposterous Medicines, these lancinating Pains are not again perceived for a great while, and the Disorder lies latent for some Years. But when these lancinating, and at last pungent Pains, return almost daily, and do not go soon off, 'tis highly to be dreaded, lest the latent or occult Cancer soon be changed into one of the ulcerated Kind. That Species of Pain is, of all others, the worst, which excites the Sensation, as it were, of a live Fire, preying upon the internal Part of the Scirrhus; for then the Integuments of the occult Cancer are gradually torn from its swell'd Mass, and corroded by a higher Degree of Acrimony.

By the reddish, deeper red, purple, bluish, livid, black Colour.

The various Degrees of Malignity, in an occult Cancer, are known from the Change of its Colour. A reddish Colour denotes the slightest Degree of the Disorder, and a black Colour the worst and most malignant kind; whereas the other Changes of Colour indicate the intermediate Degrees of Malignity; for a reddish Colour denotes only a slight Inflammation; a deeper red, a stronger Degree; and a purple Colour, a still higher, together with a beginning Mortification. But, when the Integuments of the Cancer are rendered thin, and begin to be corroded, the Colour of the subjacent Cancer becomes transparent, and appears first bluish, and afterwards, when the Disorder is increased, livid; and, when it is just ready to become exulcerated, a blackish Colour is perceived, through the thin and distended Skin of the Cancer.

By its feeling considerably hard, ragged, and rough, with a rising Apex.

Whilst an occult Cancer, in consequence of its Integuments remaining entire, is not, as yet, changed into one of the manifest and ulcerated Kind, it always appears hard like a Stone; and the greater this Hardness is, the more fatal Consequences are to be expected. But, when it is exulcerated, a Part of the contained Matter protuberates through the Integuments, and it appears less hard. The Surface of such a Tumor never appears smooth and equal, but rough and ragged, with knotty Eminences. In that Part, where the Integuments are more distended or corroded, they are capable of making less Resistance, and a small prominent Apex appears, which is a certain Sign, that the Cancer will soon be exulcerated: Afterwards the Integuments on this Apex are excoriated, gradually recede from each other, and generally the Cancer first becomes ulcerated in this Part.

By the Increase of the Tumor.

A benign Scirrhus often remains, for some Years, without any remarkable Increase of its Bulk: But when it begins to become malignant, it often, in the Space of a few Weeks, becomes four times as large as it formerly was; and then we certainly know, that it is degenerating into an exulcerated Cancer. This never appears more evidently, than when a Scirrhus, which has before appeared benign, but at the same time incapable of being resolved, is irritated by a preposterous Application of Medicines.

By the adjacent Blood-vessels becoming tumid, knotted, varicose, thick, and black.

A Cancer of this kind is a very shocking Spectacle; and the Name Cancer was principally given to this Disorder, because, by extended Veins on every Side, it resembled the Figure of that Animal, as we have already observed; for this hard Tumor, as yet confined within its Integuments, but increased in its Bulk, compresses the adjacent Veins, which, in consequence of the Blood's passing with Difficulty through them, are distended, and appear varicose; and whilst the thinnest Part of the Blood only is forced thro' the compressed Vessels, the Collection of thicker Blood, which stagnates, has almost a blackish Colour. But it is always observed, that the Veins of the Skin are much

enlarged, when distended by any Humour whatever. Thus, in dropical Patients, and Women big with Child, the Skin of the distended Abdomen has its Veins varicose, and very large: But, when these varicose Veins are pressed upon by a subjacent Tumor, they appear still larger, than when they retained their round Figure. The Veins appear knotted, because the rough and ragged Surface of the Cancer, in some Parts, compresses them more, and in others less. This black Colour of the Veins made the Antients suspect, that a melancholic Humour, here lodg'd, acted as a Cause. But whence this black Colour proceeds, is sufficiently evident from what has been said.

By these Signs, an occult Cancer, lodged in the external Parts of the Body, may be known; but it is, with more Difficulty distinguished, when situated in the internal Parts. The Signs of a preceding Scirrhus, together with a Heat and Pain in those Parts, in which there was only, before, an indolent Sense of Weight perceived, afford us some Light in these obscure and dubious Cases.

Ætius, in *Tetrabibl.* 4. *Serm.* 4. *Cap.* 43. when describing an occult Cancer in the Breast, enumerates all these Signs in the following Words: "When an occult Cancer is lodged in the Breast, a large Tumor appears, which resists the Touch, is unequal, intensely painful, deep seated, extending its Roots far and wide; it is surrounded with Veins, which are every-where varicose. It is of a cineritious Colour, somewhat inclined to red, and sometimes livid; and tho', to such as look at it, it appears to be soft, yet it deceives the Sight, and feels highly hard to the Touch. It induces a pungent Pain, which is often so intense, as, by Consent, to excite malignant Inflammations of the Glands in the Arm-pits. These Pains also reach to the Clavicle and Scapulæ."

An ulcerated Cancer is distinguished by the Opening of a preceding occult Cancer; for then the Skin is laid bare by a kind of Excoriation, and a thin acrid Ichor, as it were, transudes through it.

An ulcerated Cancer only differs from an occult one, in the Corrosion of the Integuments, and in its being subsequent to the occult one, as we have already observed. Hence it may be easily known; for it supposes a previous occult Cancer, and its becoming open. But the Integuments are never broken suddenly, nor, when they are broken, is the contained Liquid copiously discharged, as it is observed to be in ripe Abscesses, which open spontaneously. But the Skin and Epidermis are gradually excoriated and separated, and something of a thin Ichor is pressed through the slender Integuments, the several Strata of which are thus torn with racking Pain, till the Substance of the Cancer is gradually pressed through the Aperture made. But, how an exulcerated Cancer runs through the various Degrees of increased Malignity, till at last it terminates in Death, we now proceed to describe.

The Progress of a Cancer is thus: The sound Vessels; about the Edges of the hard Cancer, being weakened by the perpetual Attrition of the circulating Fluids, and distended by the Neighbourhood of the Tumor, at last break; hence a Putrefaction, and thence a subtle, acrid, fetid, cadaverous Sanies, which corrodes the circumambient Parts, preys upon those which are near it, and makes a Progress all around; whilst it propagates its malignant Roots every Way deep into the adjacent Parts, by which it adheres strongly. The Lips then become swell'd, retorrid, and dismal; an intolerable burning, pungent, corroding Pain is perceived; the Colour becomes cineritious, livid, or black; occult Cancers appear in the Glands, which communicate with the Part affected; the next Stage is attended with Hemorrhages, Convulsions, a slow Fever, Extenuation of the whole Body, a Loss of the Sense of Smelling, callous Tubercles in the Ears unattended with Pain, Faintings, and lastly, Death, in consequence of the Corrosion and Consumption brought on by the Disease.

To this horrid Train of Symptoms give me Leave to add a violent Pain in the Back and Loins, not unfrequent in the last Stage of a malignant Cancer.

As to the sound Vessels about the Edges of the Cancer, it has been already observed, that the Increase of the Tumor, together with its Hardness, are Signs of a Scirrhus degenerating into a Cancer. There is, therefore, an Attrition of the sound Vessels about the Edges of the Cancer, as also about all its Surface. The same Thing also happens to those Vessels, which, being distributed through the Substance of the Cancer, remain pervious to the vital Juices; for these, being every-where compressed by the hard cancerous Tumor, in which they are lodged, are continually rubbed against it. The Inflammation, and what accompanies it, the greater Velocity of the Humours circulating through the Vessels, increase all these Symptoms. By this continual Attrition, the Vessels are ruptured, and pour forth their Contents, which soon become purid.

putrid. But, in this Case, there is no Hope of a benign Suppuration, by which this mortified and corrupted Part may be separated from the sound Parts. This will appear, if we consider the Symptoms which happen in a Phlegmon, when going off in a Suppuration, and compare them with the Nature of a Scirrhus, and the Cancer formed by it; for, in an Abscess, the ultimate tender Extremities of the arterial Vessels, obstructed with a coagulated Liquid, which cannot be resolved, have their Cohesion destroyed, and are, as it were, cut asunder by the Impetus of the arterial Fluid. These obstructed Extremities being separated, the gaping Mouths of the Vessels pour forth the sound Juices, which, mixing together in a close and warm Part, are, in a few Days, converted into a mild and laudable Pus, which is evacuated, either when the Part breaks spontaneously, or is laid open by Art. Thus, by the Victory of Nature, as *Galen de Febris*, Lib. 1. Cap. 7. well expresses it, Pus is formed, and the putrefying Humour, from its very Nature, inclined to such a Change or Alteration; for these Extremities of the Vessels, together with their stagnating and obstructing Fluids, are, as it were, assimilated, and converted into an homogeneous Pus, by the Affusion of the sound Humours. But, in a Scirrhus, the coagulated Juices often remain, for some Years, before it degenerates into a Cancer; and these Juices are, at the same time, lodged in Places, on which the Efficacy of the arterial Fluid, when put in Motion, can hardly act; that is, in the Cavities of the Glands, or in the intricate Contexture of the small Ramifications, which secrete the several Liquors brought from the arterial Blood. The obstinate Matter, therefore, of a Cancer, and the little or no Efficacy of the vital Humours upon it, never suffer us to expect a salutary Concoction of the morbid Matter: Hence, a malignant Putrefaction is only to be looked for. *Galen*, in the seventh Chapter of his first Book, *de Febris*, very justly observes, that Putrefaction may arise from two Causes, either a Weakness of the concoctive Faculty, which is not able to induce a Change for the better on the putrefying Substance, or the great Malignity of the putrefying Humour, which cannot be surmounted and corrected by a very strong concoctive Faculty. Now, both these Causes concur in a Cancer; for, in this Case, the Efficacy of the vital Fluid, on which the concoctive Faculty, meant by *Galen*, depends, is very weak, or none at all; and the Malignity of the Matter to be corrected by this Faculty is very great. They, therefore, tantalize and delude the miserable Patients, who pretend, that, by their boasted Secrets, the Matter of a Cancer can be resolved, and brought to a Suppuration. But it may be asked, Whether the whole Cancer may not become mortified, and afterwards, as happens in a Gangrene and Sphacelus, be spontaneously separated from the live Parts, by a Suppuration arising all around? The Man, who could bring about this happy Effect, would certainly deserve well at the Hands of Mankind, and have Reason to boast of his superior Art. Tho' this may seem to have some faint Shadow of Possibility in it, yet 'tis obvious, that the Difficulties to be surmounted are very great. For the entire Cancer does not become mortified, but the Vessels pervious to the vital Humours, and the live Nerves, are lodged in the Middle of this mortified and corrupted Mass: Of this we are sufficiently informed by the intense Pain, and the continual and copious Discharge of Sanies. But, in a Gangrene and Sphacelus, the Parts, being totally mortified, feel no Pain, tho' they be destroyed with the Knife, or the actual Caustery, as is observed under the Article GANORÆNA. In a Cancer, therefore, the mortified and corrupted Part, furnished with intercurrent live Vessels and Nerves, excites the severe Calamities now to be enumerated. Nor does it appear possible ever to surmount this Disorder, unless the mortified Part could be removed, or the live Vessels become mortified, without propagating the Disorder to the adjacent Parts; for, in this Case, all vital Influx and Efflux thro' the Part being destroyed, a Gangrene or Sphacelus would be produced instead of a Cancer, and the Part affected would indeed be destroyed, but the Progress of the Disorder might be stopt, and the corrupted separated from the sound Parts. In very small Cancers destroyed all at once, either by violent Corrosives, or the actual Caustery, this Method of Cure has sometimes succeeded. Thus the celebrated *Boerhaave* cured a small, but malignant Tumor, on the external Part of a Clergyman's Nose, by corroding it all at once by highly acrid Oil of Vitriol: For thus a dead Eschar is produced, which, if it covers the whole Cancer, may be afterwards separated from the live and sound Parts by a benign Suppuration. *Celsus* has a beautiful Passage, concerning this Use of corrosive Medicines, as follows. "An Eschar," says he, is induced by corrosive Medicines, which, when separated every-where from the sound Flesh, draws along with it whatever was corrupted; and the Sinus, when thus rendered pure, may be filled with incensing Medicines." But it is impossible so to destroy large Cancers, by the momentaneous Action of the most acrid Corrosive, or by the actual Caustery itself, as entirely to change them into dead Eschars; for the smallest Thing of a cancerous Nature, which is not

by this means mortified, and remains under such an Eschar, will afterwards rage with boundless Fury: Hence, little is to be expected from this Method, except in small Cancers, which may, at the same time, be more safely extirpated with the Knife. But no one ever asserted, that any Remedies were known, which could restrain the preying Putrefaction of a Cancer, and separate it from the live and sound Parts. In the third Book of *Herodotus* we read, that *Democedes*, in consequence of his having cured a dangerous Luxation in King *Darius*, which had been in vain attempted by the *Egyptian* Physicians, was employed to cure *Atossa*, the Daughter of the celebrated *Cyrus*, and Queen of *Darius*, of an Ulcer, (*ἔλκος*) which arose in her Breast, and which, breaking, spread itself as a Cancer does. This Ulcer, so long as it remain'd small, *Atossa*, from a Principle of false Modesty, conceal'd; but, when her State became worse, she discovered her Disorder to *Democedes*: But in the Progress of this Cure, there is not the least Mention made, either of Incision, or the Use of the Caustery. *Helmont*, in *Capitulum de Idciis Morbosis*, informs us, that there was a Man in the Duchy of *Juliers*, who by sprinkling a Powder, which created no manner of Pain, upon all kinds of Cancers, cured them, and afterwards consolidated them by an incensing Plaister: And he adds, that this Art was buried with its Owner. Whatever Truth there may be in Accounts of this Nature, for any thing we can find, no such Remedy is known at present.

As to the subtil, acrid, fetid, and cadaverous Sanies, the mortified Mass of the exulcerated Cancer is, by the Access of the Air, and the Heat of the adjacent live Parts, soon converted into a terrible Putrefaction, and dissolved, as it were, into a highly fetid Sanies. But the live Vessels, dispers'd thro' the Substance of the Cancer, bring fresh Fluids, which are soon corrupted, whilst they wash these putrid Parts: The Nerves, which are alive, and highly sensible of Pain, being continually irritated by this acrid Sanies, are, perhaps, the Occasion of a larger Quantity of thin and acrid Serum being derived to these Parts. 'Tis obvious, from what is said under the Article VULNUS, that tense Nerves, Tendons, and nervous Membranes, wounded by a small Puncture, produce the worst of Symptoms; and especially, that a copious Evacuation of thin and acrid Serum often accompanies these Accidents. 'Tis, therefore, highly probable, that this Cause concurs in an ulcerated Cancer, from which a large Quantity of a thin Fluid is often discharg'd: But the Fluid convey'd to the Cancer seems to degenerate, and acquire so malignant a Nature in the Place affected, tho', before, it was mild and benign; for *Van Swieten* tells us, that he saw an exulcerated Cancer in a Woman, otherwise sound and healthy, discharge such an acrid Sanies, which did not, therefore, pre-exist in the Blood, but was generated in the Part affected. Hence, in an exulcerated Cancer, such an acrid Sanies is not immediately discharg'd, but its Malignity gradually increases, in proportion as the Putrefaction daily augments. We also observe, in other Disorders, that Fluids, lodg'd in some Parts of the Body, and degenerating from the Nature of the sound Humours, assimilate, and change into their own Condition, other Fluids convey'd to them. When, for Instance, after the Extirpation of a Breast, a large Wound has remain'd, Physicians and Surgeons often complain, that, in consequence of the large Quantity of Humours convey'd to the Part, and chang'd into a laudable Pus, the whole Body is exhausted and dry'd up, as it were, by a true Marasmus. Where a Liquor, degenerating from laudable Pus, is lodg'd in the Cavity of a fistulous Ulcer, a white Pus, of an equal Consistence, is never collected in that Part, but either an Ichor, or a Sanies. When a fistulous Ulcer arises, for Instance, from a carious Bone, the Nature of the Fluid, collected in its Cavity, will still be worse; from all which it seems to be obvious, that the putrefy'd cancerous Mass converts the Humours convey'd to it into the same Nature with itself, tho', before, their State was very good. *Helmont*, in his Treatise intitled, *Scabies & Ulcera Schelorum*, seems to have been of this Opinion, when he says, "Sanies and Pus are not the Excrements of an Ulcer, or any Part affected, nor the Effects of a natural Digestion; but they are produced by the Seeds or Roots of the Ulcer, &c." — Whilst the proper Principle of Corruption is lodg'd in the Ulcer, and corrupts the alimentary Blood, before it is fit for Digestion, &c. — Sanies, therefore, and Pus, are not the Excrements of the Ulcer, but the Effects of a corrupting Principle, and they are, at once, the Indications, Signs, and Effects, of a Blood degenerated and deprav'd into a noxious Matter." He afterwards treats of this Doctrine at large, and confirms it by Arguments. The above Quotation sufficiently evinces, that he thought the sound Humours convey'd to an Ulcer degenerated into the same Degree of Malignity with the Humours lodg'd in the Bottom, and at the Lips of the Ulcer.

But, that this Sanies, discharg'd from an ulcerated Cancer, may acquire an intolerable Acrimony, is certain from numberless Instances. Thus *Van Swieten* informs us, that he saw the

Linen Cloths, apply'd to a cancerous Part, wet with such a Sanies, eat away, and corroded in the same manner, as if they had been touch'd with Aqua Fortis. Hence *Ætius*, in *Tetrabibl.* 4. *Serm.* 4. *Cap.* 43. justly said, "That an ulcerated Cancer continually corrodes, penetrates deeper, cannot be stop'd, and discharges a Sanies more deleterious, than the Poison of venomous Animals; and which is abominable, both on account of its Quantity and Smell." 'Tis, therefore, no Wonder, if this highly acrid Poison, corrodes and preys upon all Parts near it. Thus *Van Swieten* informs us, that he saw an exulcerated Cancer of the Breast, which had eaten as far as the Arm-pit, when, the larger Blood-vessels being corroded, the Patient died of a profuse Hæmorrhage. *Hildanus*, in *Observat. Chirurg. Centur.* 3. *Obscr.* 87. informs us, that, in the Space of four Months, he knew an ulcerated Cancer corrode the whole Breast, and all the adjacent Parts, as far as the Sternum and Axil. *Stalpart Vander Weille*, in his *Observat. Rarior. Centur. Post. Part 1. Obs.* 26. informs us, that he found a Hole, as large as one's Fist, eaten in the Stomach by a cancerous Tumor: The Lobe of the Liver, which lay upon the Stomach, and the adjacent Diaphragm, were in like manner corroded. In the *Miscellan. Curios. Dec.* 1. *A.* 1. *Observ.* 99. we are inform'd, that, by means of a cancerous Pancreas, the Diaphragm was perforated, the Spina Dorsi corroded, and the Kidneys become entirely corrupted and putrid. Many Cases of a like Nature occur in practical Authors.

As to the Disorder's making a Progress all around, and spreading its malignant Roots every Way deep into the adjacent Parts; if an exulcerated Cancer was, by this acrid Sanies, corroded to the live Parts; and thus consumed by its proper Sanies, there would still remain some Hopes of a Cure, after so many Calamities. But this terrible Disorder changes all the adjacent Parts into a like Malignity, first indurating them, and then corroding them by a true and genuine Propagation of the Disorder. This happens not only in the Circumference, but the Disorder, breaking the Pellicles, penetrates deep, and is, for this Reason, said to send forth malignant Roots, by which it adheres very strongly to the adjacent Parts; for these indurated Ramifications of an exulcerated Cancer are generally distributed every Way, and, if the smallest Portion of them remains after the Extirpation of the Cancer, it soon springs up afresh, and brings on a Disorder equally terrible.

As to the Lips being swell'd, retorrid, and dismal; whilst a Scirrhus is beginning to be chang'd into a Cancer, a great Hardness and Increase of the Tumor are observ'd, as has already been taken notice of: But when, by a Consumption of the Integuments on that rising Apex, which uses to appear in a malignant Scirrhus, a Way is open'd for the Cancer, every Way press'd upon, to expand itself all round the Aperture, to thrust back the Lips of the Ulcer, and to grow out in a fungous Mass, sometimes of a livid, and sometimes of a blackish Colour: Hence these terrible Lips of an ulcerated Cancer are constituted.

As to the intolerable burning, pungent, and corroding Pain; the Skin, as yet entire, is gradually burst by the swelling cancerous Mass. Hence, in consequence of the cutaneous Nerves being slowly lacerated, the most violent, and at the same time the most continued Pain is produced; besides, the Nerves distributed thro' the Substance of the Cancer remain alive, and are every Moment corroded by the acrid Sanies, which also diffuses itself thro' the adjacent Parts, and preys upon them. In consequence, therefore, of the continual Laceration, and slow Corrosion, a violent Pain, almost without any Intermission, racks the miserable Patients. 'Tis, therefore, evident, how much more severe a Cancer is, than a Gangrene and Sphacelus; since these last Disorders, in consequence of all the Parts being destroy'd by a perfect Mortification, are entirely free from Pain.

As to the cineritious, livid, or black Colour; when the Flesh of the soundest Animal, after it is slain, is suspended in a warm Air, the red Colour is soon chang'd into a pale and cineritious one; then, when a Putrefaction begins, it becomes livid, then blackish, and is at last resolv'd into a putrid Sanies. In a Gangrene and Sphacelus, the same Change of Colours is observ'd in the affected Parts of the human Body. Since, therefore, in an ulcerated Cancer, the greatest Part of it is mortified, and become putrid by the Heat of the adjacent Parts, and the Access of the Air, 'tis sufficiently evident why the Colour must thus be chang'd, according to the various Degrees of Corruption. Hence, a cineritious Colour is best, a livid one worse, and that which is black worst of all, because it implies the highest Degree of Putrefaction.

As for occult Cancers appearing in the Glands, which communicate with the Part affected; it is sufficiently plain, from physical Observations, that whilst the Glands, in certain Parts of the Body, are disorder'd, others are also affected in different and remote Parts. Thus, under the Article SCIRRHIUS it is observ'd, that when the Glands of the Neck are scrophulous, those of the Mesentery are generally affected with the

like Disorder; whence these Glands are justly said to communicate or correspond with each other. In inveterate Scirrhuses, and particularly in Cancers of the Breast, the subaxillary Glands, almost always becoming indurated and tumid, degenerate into occult Cancers.

As to Hæmorrhages; when the Blood-vessels, distributed thro' the Substance of the Cancer, are dissolv'd, or when the remarkable arterial Ramifications are corroded, by the Disorder preying upon the adjacent Parts, as in Cancers of the Breasts, it has often been observ'd, that the axillary Artery, or its larger Ramifications, being corroded, an Hæmorrhage has been brought on, which soon prov'd mortal. Such an Effusion of Blood is with the greatest Difficulty stop'd, since, either by Compression, or the Application of acrid Styptic Liquors, the Cancer is generally much irritated: Nor may a large Hæmorrhage only happen from a Corrosion of the large adjacent Vessels; but the Vessels distributed thro' the Substance of the Cancer are often so dilated, that the greatest Danger is to be dreaded from a Rupture of them, tho' in a sound State they were sufficiently minute. In that terrible Cancer of the Eye, before mentioned from *Hildanus*, the dilated Vessels happening to break, seventy Ounces of Blood were discharged in the Space of two Days; and tho', from so great a Loss of Blood, the Patient was become very weak, yet next Day, when the Bandage, with which the Rupture was cover'd, was remov'd, the Blood burst out with a more terrible Force than before. It sometimes happens in barren Women, that after all the Signs of a Scirrhus of the Uterus have preceded, a fixed and continued Pain seizes the Pubes, Hypogastrium, and Loins, and a sanious Ichor is discharged from their Pudenda: At this Time, a violent Hæmorrhage of the Uterus generally ensues, by which, when they are render'd very weak, they feel an Alleviation of their Symptoms for a little time, 'till at last, upon a Recovery of their Strength, they return with the same Violence. In this Case there seems to be a cancerous Disposition about the Parts of the Uterus, which corrodes the dilated Vessels.

As to Convulsions; these are generally produced, either by a previous Evacuation of Blood, or an Irritation of the Nerves, or an intolerable Pain.

As to a slow Fever; this is produced by the perpetual Watching, and the intense Pain felt: Besides, that acrid and putrid Sanies, always washing the Surface of the Cancer, insinuates itself into the small corroded Veins, and corrupts the whole Mass of Blood with a putrid Taint. For which Reason, a Cancer is enumerated as one of the particular Causes of a Fever: For if mild Pus, too long retain'd in a close Abscess, and entering the Veins, is capable of producing the Symptoms enumerated under the Article ABSCESSUS, how much more may they be produc'd by a cancerous Sanies re-absorbed into the Vessels?

As to Extenuation of the whole Body; how much Pain long endur'd, and an uneasy State of Mind, are capable of extenuating the Body, is obvious from daily Experience. Since, then, such Patients are rack'd with continual Pain, and dread the worst Symptoms, 'tis no Wonder they should be extenuated. Besides, a large Quantity of Liquor is evacuated from the Body, whilst an exulcerated Cancer continually discharges this acrid Sanies. A gentle hectic Fever, in the mean time, and protracted Watchings, prey upon the Body; and, at the same time, those Functions which are subservient to the Restoration of the lost Juices, by preparing laudable Humours from the Aliments taken, are deprav'd.

As to the Loss of the Sense of Smelling, and callous Tubercles in the Ears, unattended with Pain; an ulcerated Cancer diffuses a Smell so fetid and intolerable, that the By-standers can scarce endure it: The miserable Patients are, however, oblig'd to bear it Day and Night; hence their Sense of Smelling is entirely lost. *Hippocrates, de Morbis Mulier. Lib.* 2. *Cap.* 20. reckon'd the following among the Symptoms of a Cancer: "The Patients have their whole Bodies extenuated, their Nostrils are dry and contracted, they breathe short, and their Sense of Smelling is entirely lost: They have, indeed, no Pain in their Ears, but sometimes callous Tubercles are form'd in them." *Van Swieten* informs us, that he had often observed those afflicted with Cancers to be depriv'd of the Sense of Smelling; but says, he never saw callous Tubercles, unaccompanied with Pain, form'd in the Ears of such Patients; and where they happen, he supposes them to be beginning Scirrhuses of the Follicles, which are lodg'd in the *Meatus Auditorius*.

As to the Faintings, and at last Death; the Faintings may proceed from the Strength being impaired by Hæmorrhages, Pains, Watchings, or a Fever; and, at last, a welcome Death puts an End to a miserable Life.

From what has been said 'tis obvious, how deplorable a Disorder a Cancer is, when it cannot be amputated; as also what terrible Effects it must produce, when it preys upon the internal Parts of the Body. In this Case, the only Comfort which the Patients can have is, that they shall soon die, in consequence

sequence of their Viscera being corroded ; whereas, when the Disorder is situated in the external Parts, it only corrodes slowly, and often requires some Years to kill the Patient. From what has been said it also appears, how carefully a Scirrhus, which is, as it were, the Foundation of a future Cancer, ought to be treated ; for if no Hopes of a Resolution are left, it is forthwith to be extirpated, however little prejudicial it may seem to be in consequence of its Freedom from Pain.

An occult Cancer, in a Body of a good Habit, may be sometimes endur'd without great Inconvenience ; but if once mov'd in the manner above described, it will infallibly cause a great deal of Pain and Trouble.

As to the Prognostics, therefore, all the Disorders before enumerated may justly be feared, if the Cancer be ulcerated : For as long as it is occult, and restrained within its Coats, it may be endured, provided it be left at Rest, and irritated by no Remedies, which may increase the Motion of the Humours through the Vessels, in the very Substance of the Cancer, or in the adjacent Parts ; under which Circumstance the Cancer would soon be enraged. This was very well observ'd by *Celsus*, who seems in a manner to have despaired of the Cure of a Carcinoma, or Cancer, and for that Reason recommends only a palliative Cure. "None of them," says he, "was ever the better for Medicines ; but when cauterized, they have been exasperated ; and increased, till they have destroy'd the Patient ; and when cut out, and after the Wound has been cicatrized, they have returned, and brought the Cause of Death with them. On the contrary, many who use no violent Means to free themselves from so troublesome a Disorder, but apply gentle Medicines, which sooth, as it were, and soften the Distemper, have lived under it to extreme old Age." *Lib. 5. Cap. 28.* The Histories of Medicine inform us, that occult Cancers have been many Years in the Body, without doing any considerable Injury. *Tulpius, Observ. Med. Lib. 1. Cap. 7.* relates, That a Woman carry'd a Cancer about fifty Years and more, without any great Inconvenience. Being afflicted afterwards with her Husband's ill Fortune, the Pain and Itching, of which she had hitherto been scarce sensible, increased ; and upon the Application of Caustics, which was advised by an Empiric, the Disease was converted into a very bad kind of ulcerated Cancer.

Hildanus, Observ. Chirurg. relates, That a Citizen of *Lau-fanne* had a cancerous Tumor, as big as a Hen's Egg, near his Left Breast, for many Years. By the Advice of some Physicians he apply'd to it Plaisters of Mucilage, Melilot, and the like, with an Intention of gradually mollifying the Tumor : But a Pain and Inflammation soon following, he removed the Plaisters, and mitigated the Symptoms by an Application of Refrigerants. Some time afterwards he again apply'd the Plaister, but with the same Effect as before ; wherefore he abstain'd from the Use of them for the future, and lived a long time afterwards. Hence appears the Truth of that Aphorism of *Hippocrates*, quoted before, which determines, that it is better not to meddle with those who are troubled with occult Cancers ; because if they are treated with Remedies, they die in a short time ; but being left to themselves, endure the longer ; which *Hildanus* confirms by several Examples.

We cannot expect that an occult Cancer should lie long without giving any Molestation, unless the Body of the Patient be full of good Humours, or that his Blood, and all his Humours, be of a mild and benign Temperature, as they are in those who enjoy perfect Health : For under any remarkable Predominance of a Cacochymy, by which the Humours degenerate from their natural Temperament into an immoderate Acrimony, as in the acrid Scurvy, a confirmed atrabilious or a hot bilious Temperature, the occult Cancer will soon degenerate into an ulcerated one, as was before observed.

A beginning Cancer, if small, moveable, situated in a proper Place, not adhering by any considerable Vessels, proceeding from an external Cause, in a young and otherwise sound Body, and being the only one in the whole Body, is immediately to be extirpated by the actual Caustery, or cut out.

Though it appears from what was said under the preceding Head, that occult Cancers may be sometimes endur'd for a long time ; yet, since even a Scirrhus still threatens the Patient with the Fear of a worse Evil, as was observed before, far greater is the Danger of which we ought to be apprehensive from a Cancer ; we may therefore establish it as a practical Axiom in Medicine, that all Cancers are to be extirpated, if it may be done with the Safety of the Patient, and without Fear of a Return : For though *Celsus* writes, that no Remedy ever did Good to a Cancer, yet we are convinced, by innumerable Observations, that a Cancer may often be safely and successfully separated from the other Parts by Cutting. But *Celsus*, as we have already observed, has given but an obscure and confused Description of a Cancer ; and if we consider his Directions in the Cure of it, we shall easily see the Reason why it

prov'd unsuccessful. For he advises the immediate Application of Caustics ; and if by these means the Disorder is lessen'd, and the Symptoms abated, you may then, he says, proceed in the Cure with the Knife and Burning. But it sufficiently appears, that by this Method the Cancer is extremely irritated before you proceed to its Extirpation ; and if we consider what the other ancient Physicians have directed, concerning the Destroying of a Cancer, the Reason will be evident, why the worst of Events ought to be expected from their Management. Thus we read in *P. Aegineta, Lib. 6. Cap. 45.* that some consum'd all the corrupt Parts with Causteries, others cut off the entire Breast, and then cauterized the Wound ; but he adds, that *Galen* only approved that Section in which the Cancer could entirely be cut out. *Actius, Tetrab. 4. Serm. 4. Cap. 45, 46.* giving an Account of *Leonidas's* surgical Treatment of a Cancer, says, that the sound Part of the Breast is to have an Incision made in it, and then to be cauterized, till, by inducing a Crust, the Hæmorrhage be stopped ; soon afterwards the Cutting is to be renewed, and then the Cauterizing as before ; and thus are we to proceed by alternate Cutting and Cauterizing, till the Cancer be quite consumed. And when the Work of Amputation is perfectly performed, all the Parts are to be cauterized over again to a Dryness ; and he says, that the first Cauterizings are made for the sake of stopping the Blood ; but the last, with an Intention of consuming the Reliques of the Disease. Yet he observes, that a Scirrhus may be extirpated by Section alone, without a Caustery ; for he believed there was no Danger of an Hæmorrhage in that Case, and therefore no need of Burning. But how dangerous this cruel Method of curing a Cancer must be, will sufficiently appear hereafter ; and also if it be consider'd, that Convulsions are to be feared at the very Time when the Ulcer is under Repurgation. But when the Cancer is to be destroy'd by Section alone, according to the modern Practice, the Cure does not seem to carry much Danger in it, provided the Cancer be qualify'd according to the following Conditions :

First, that it be in its Beginning ; for the longer it continues, the worse, every thing consider'd, must be the Event ; since it is to be feared, that the Cancer has fixed its malignant Roots in the neighbouring Parts underneath.

Secondly, that it be but small ; for a large Cancer carries more Danger in the Operation ; and the Cure of a great Wound, which must then be inflicted, cannot but be difficult ; for it frequently happens, that by the copious daily Discharge of Pus, the exhausted Patients fall into a true Marasmus ; or the Pus, continuing too long within a Wound of a considerable Compass, is resorb'd into the Blood ; by which means a purulent Cacochymy is generated in the Fluids, which often proves mortal.

Again, in the third Place, the Cancer must be free and disengaged, or moveable ; for unless it can be removed, Root and Branch, at once, the least Reliques of it will sprout forth anew with more Malignity than ever ; and if it be firmly united by Accretion to the subjacent Parts, it cannot be entirely taken out. How to know when a Cancer is free and disengag'd, see SCIRRHUS.

Fourthly, it ought to be situated in a proper Place, and not united by Accretion to large Vessels. On this Subject see the Article SCIRRHUS : Where also it appears how far the Dexterity and Intrepidity of a skilful Surgeon will go in the most dangerous Cases ; for even scirrhus Parotides, and subaxillary Glandules, which are so much to be dreaded, on account of the Vicinity of very large Vessels, have been extirpated by a skilful Section, with all the Success that could be desired. However, the worst of Consequences are doubtless to be apprehended from the Accretion or Growing of a Cancer to large Vessels ; tho' we are of Opinion, that a doubtful Remedy ought to be try'd, if there be but the least Hope of delivering the Patient from this most dreadful of all Evils, a Cancer.

A fifth Qualification requir'd in a Cancer, in order to its happy Extirpation, is, that it be produced by an external Cause in a young and sound Body. For where there is a Scirrhus from a latent Disposition, and a Cancer generated of that Scirrhus, it is greatly to be feared, that, after the Extirpation of the Cancer, the same Cause remaining, another should arise ; but when, for Instance, it owes its Original to a Contusion of the Breast, there is no Fear of its growing again. Since also a very good State of Health is required, in order to the Consolidation of the Wound after Extirpation, it is easy to infer how great Reason there is to hope for a Cure, when the Operation is performed on a young and healthful Body. But in Persons of an advanc'd Age, especially the Female Sex, and in atrabilious Temperaments, the Constitution is disposed to the Production of Scirrhusities and Cancers.

Lastly, the Cancer which is to be extirpated, must be the only one in the whole Body ; for we learn by Observation, that when a Cancer is taken off, if there be but a small Scirrhus in another Part of the Body, it will increase in a short time, and degenerate into a Cancer. Therefore we must carefully examine all the glandulous Parts of the Body, and find whether they contain any latent Scirrhusity. And because, by Observations made on

on a Scirrhus, it appears, that Disorders of this Kind may be latent in the interior Parts of the Body, we are to be no less solicitous, whether there be any Signs to be discover'd, by which we may know, that the internal Parts of the Body are affected with a Scirrhus, or a Cancer. Thus, for Example, they who have almost all the Glandules of their Neck affected with the Scrophula, generally labour under the same Disorder in the Glandules of the Mesentery. And since there is a surprising Communication or Correspondence between the Breasts and the Womb, before we proceed to the Extirpation of a cancerated Breast, we must carefully examine, whether there be any Suspicion of the like Disorder about the Uterus. For if there be a Sense of an unusual Weight about the Hypogastrium, or a Pain in those Places; or the Patient be frequently afflicted with a Hæmorrhage of the Uterus, or a Distillation of sanious and acrimonious Matter from the Vagina, or the like Symptoms, it is greatly to be feared, that after Extirpation of the Breast, tho' most successfully perform'd, a worse Disease will succeed in the room of the other, and infest the Uterus.

Emollient, emplastick, suppurating, acrid, excoriating, vesicating, and caustic Applications, convert an occult into an ulcerated Cancer: All these are, therefore, to be avoided.

The many fatal Events, which have been known to happen after Application of the like Topics, are a sufficient Proof that a Cancer can never be cured, but only irritated, by such Remedies; for which Reason they are prohibited, by the unanimous Consent of all prudent Physicians and Surgeons, since the only Cure for a Cancer is Extirpation. All Emollients, Emplasticks, and Suppuratives, only disturb the incorrigible Matter of a Cancer, and dispose it to the worst sort of Putrefaction, but can never reduce it to Suppuration. Acrid, excoriating, vesicatory, with actually and potentially caustic Applications, dissolve the Integuments of an occult Cancer, and, in a short time, render it open, and ulcerated, in the worst manner. Accounts of the ill Effects of such Medicines are given above, and also under the Article SCIRRHUS. I shall only give here one Example from *Paré, Livre 7. Chap. 31.* A noble Virgin, who was Maid of Honour to the Queen Mother, had a Tumor, of the Size of a Walnut, in her Left Breast, which manifested the Malignity of its Nature, by the racking Pains it gave her. *Paré* was of Opinion, that a Palliative was the only proper Cure, which was also the Sentiment of a very experienced Physician, with whom he consulted. After two Months, the Disease continuing in the same State, the Patient, being dissatisfied, consulted another Physician, who confidently promised her a perfect Cure, tho' he was told, that the Disease was by others accounted incurable. He apply'd heating and mollifying Things to the Tumor, by which, in a short time, the Breast was swelled to a vast Bigness, and was at the same time affected with a most acute Pain, and a violent Inflammation. At length the Tumor broke, and a great Hæmorrhage follow'd; which the Physician endeavouring to restrain by caustic Powders, all the bad Symptoms were extremely exasperated, and the Patient dy'd in a short time after. How unhappy is the Man whose Conscience reproaches him with having, by his own wilful Rashness, precipitated his Neighbour into the like Destruction!

A Cancer which is large, of long standing, adherent, situated in any Part inconvenient for Extirpation, growing to or lying upon any considerably large Vessels, proceeding from an internal Cause, in a Body which is old, of a bad Habit, and disposed to cancerous Disorders, and which is accompany'd with Cancers in other Parts, must neither be touch'd with the Knife, nor any of the topical Medicines above-mentioned.

Here are enumerated all the Marks or Qualifications which forbid the Extirpation of a Cancer, and which are opposite to those before recited, and are easily understood by what was there said. Now it is requir'd, that, in the like Cases, when Deliberation is taken about extirpating a Cancer, all things be seriously weigh'd; for if a Cancer, which may be extirpated, be suffer'd to continue, the Health of the Patient is very ill consult'd; and if we remove a Cancer, when it requires to be left at Rest, all the bad Symptoms are increased, and the unfortunate Patient endures the Torment of a cruel Operation to no Purpose. Whenever, therefore, a Cancer is to be dreaded, either for the Greatness of its Bulk, or the Length of its Continuance, or when it is grown to the adjacent Parts, we can hardly expect a good Event from an Extirpation, which also sufficiently appears to be impossible in a Situation which is inaccessible to the Hands and Instruments of the Surgeon. But where the Danger of the Operation is demonstrated by the Vicinity of large Vessels, the Cure is not to be attempted, unless we could infallibly restrain the dreaded Hæmorrhage by Ligatures, or some other way. It appears from what has been said above, that no good Event is to be expected from the Extirpation of a Cancer proceeding from internal Causes, especially if

old Age, or a remarkable bad Habit, obstruct the Consolidation of the Wound; for, as it appears by Observations on Wounds, the Restitution of lost, and the uniting of separate Substances, must be effected by good Humours convey'd thro' sound Vessels in a due Quantity, and with a proper Force. But when we meet with several Scirrhuses, or occult Cancers, in distant Places, it is an evident Sign, that the Body is disposed to the Generation of Cancers; and therefore it would signify nothing to extirpate a bad Stock in one Place, the Shoots of which appear in other Places, and will soon ripen into the same Malignity. It must, however, be confessed, that it may be sometimes most advisable to extirpate a Cancer, tho' attended with some Symptoms which seem to prohibit an Extirpation as dangerous, and sometimes as unserviceable; for the high Malignity of this Disorder renders a dubious Remedy preferable to a certain and terrible Death, provided the faintest Hopes of a happy Event are left; or, at least, after Extirpation, it may be long hindered from appearing afresh in other Parts. All these Degrees of Danger ought, however, to be laid before the Patient, and his Friends, lest the Physician should either appear to have been ignorant himself, or to have imposed upon those with whom he had to do. Thus, under the Article SCIRRHUS, it is observed, that Extirpation has succeeded happily in Parts highly dangerous, on account of the Vicinity of large Blood-vessels. *Hildanus*, as we have related from his Observations, extirpated a Breast, tho' several pretty large Scirrhuses were lodg'd under the Arm-pit on the same Side, which he cut out at the same time. 'Tis the Duty of a conscientious Physician, to advise nothing to be done to his Patients, but what, were he in the like Circumstances, he would order to be done to himself. When, therefore, after a due Consideration of the Case, 'tis obvious, that the Extirpation is entirely impossible, or useless, if it could be performed, nothing remains but to alleviate the Symptoms, and preserve the incurable Disorder in the same State as long as possible. But the Method of obtaining this End will be laid down in what follows.

Unless a Cancer can be entirely extirpated, together with its Roots and Seeds, any Attempt to take it off by Incision will exasperate it, make it recur to the inward Parts, and there generate others, or increase those already found.

Any Part of the Substance of a Cancer, which grows to the adjacent Parts, and is distributed through them, is call'd the Root of the Cancer; for we have already observ'd, that an ulcerated Cancer sends off malignant Roots very deep everywhere, by means of which it adheres strongly to the adjacent Parts. This Name is very properly given to these Ramifications of a Cancer; because from these, when left, the Disorder soon springs up afresh, as it were, from Roots. *Hildanus*, in *Centur. 3. Observ. 84.* informs us, that whilst he was examining a scirrhus Tubercle of the Tongue, he, by the Touch, perceiv'd Roots like a large Thread, distributed from this Scirrhus thro' the Substance of the Tongue. Unless, therefore, the Cancer, together with its Roots, can be extirpated, the same Disorder will soon spring up afresh. *Ruyfch*, in *Observat. Anatom. Chirurg.* gives us an Account of such a bold Cure, in which, after an Extirpation was made, the actual Cautey was apply'd to the Part, in order entirely to destroy the Roots of the Cancer. An old Woman had for a long time been afflicted with an indurated malignant Tumor in her Tongue, and, after repeated Incisions, her Disorder still return'd. Upon this the celebrated *Ruyfch*, and a skilful Surgeon, unanimously concluded, that nothing remain'd but again to extirpate the Disorder, and apply the actual Cautey to the Part. The courageous old Woman easily submitted to this cruel Cure, and bore it bravely, almost without a Shriek, tho' the Cautey was at different times pretty forcibly apply'd. When the Eschars were separated, the Place was soon brought to a Cicatrix, and the Patient afterwards remain'd sound.

That Cause, whatever it is, which laid the first Foundation of the Scirrhus, is call'd the Seed of the Cancer. Now, if either from a Suppression of the Menfes, or of an accustomed hæmorrhoidal Discharge, an atrabilious Habit of Body, a sorrowful Life, or an hereditary Taint, the Scirrhus, of which the Cancer is afterwards form'd, draws its first Origin, unless these Disorders are corrected, the Cancer will in vain be extirpated; since whilst the Cause remains, 'tis justly to be dreaded, lest the same Disorder should soon appear afresh in other Parts; and perhaps the Rudiments of the Scirrhus are by this time lodg'd in the internal Parts. But if Scirrhuses are already form'd in other Parts, upon extirpating the Cancer, they will soon be increas'd, and degenerate into a like Malignity, as is evident from many Instances. *Tulpius*, in his *Observat. Med. Lib. 1. Cap. 46.* informs us, that in a Girl, who was suffocated in an Hospital by scirrhus Strumæ of the Neck, he saw under each strumous Swelling others of a smaller Size secretly lodg'd. Twenty of these, he said, occurred in one and the same Place; and in Figure somewhat resembled the Seeds of Lupins. These latent Seeds of the Strumæ were so disposed, that the larger always lay above the lesser, which

were gradually so diminish'd, as scarcely to equal the Seed of Sefamum.

The Cause of a Cancer must be removed, together with the Cancer, or rather before it. And, unless a Cancer can be entirely taken away, it must be left. A Cancer in the Uterus, Palate, Armpits, or Groin, is incurable (See BUBO). A Cancer in the Lips is not cured without Difficulty.

As to the Cause of a Cancer; the Reason why it ought to be removed with the Cancer itself, or rather before it, is obvious from what has been said. The best Method is, if the Virulence of the Disorder will admit of a Delay, to remove the Cause of the Cancer by proper Remedies, before the Extirpation is attempted: But, if Circumstances are such as to render a Delay dangerous, the Cancer may be extirpated; provided there is any Hope, that the cancerous Disposition in the Body may be surmounted and corrected.

As to the total Extirpation of a Cancer; it is certain, that the Remains of the extirpated Cancer, tho' very small, will in a short time spring up to a like Bulk, and acquire the same, and sometimes a greater, Degree of Malignity. Of this the celebrated *Baerhaave* saw a memorable Instance in a Lady of Distinction, who had a cancerous Breast extirpated by a very skilful Surgeon. After the Operation, in the Middle of the Wound there appear'd a Mark of a cineritious Colour, and scarcely so large as the Nail of one's little Finger: But, as this Mark was lodged in the Substance of the Pectoral Muscle, the Surgeon would not venture to cut it out entirely, but thought, by the Use of Corrosives, to remove it. The Cure of the Wound succeeded so well, that all its Surface was almost cover'd with a Cicatrix: Upon which the Mark began to rise in a fungous Mass, which, with the greatest Malignity, prey'd upon the adjacent Parts, till the miserable Patient died. In another Case of a like Nature, a more hardy Surgeon, as *Van Swieten* informs us, ventured to cut out the Root of a Cancer left in the Pectoral Muscle. And, whilst the Cure seem'd to go happily on, the Patient's Jaws, on the fourteenth Day after the Extirpation, began to be contracted; and at last became so stiff, that no Force could draw them asunder; and, after having in vain try'd the most efficacious Medicines, the Patient died convulsed. From these Instances it is obvious, with how much Care we ought to examine, whether the Cancer is everywhere free, and adheres to no Part, before the Extirpation is attempted.

But, in some Parts of the Body, the Cure of Cancers is either utterly impossible, or highly difficult. It is evident, for Instance, that, when Cancers are lodged in the Viscera, no Cure can be expected, since the Surgeon's Hand can have no Access to the Part affected. Cancers of the Uterus, especially of the ulcerated Kind, are also generally accounted incurable. *Tulpius*, indeed, in his Observations, informs us, that a scirrhous Tumor, already degenerating into a cancerous Malignity, was happily extirpated from this Part, as we have before observed. But what Surgeon durst venture on the Extirpation of an exulcerated Cancer from this Organ, since it every-where adheres to it with malignant Roots? as the same Author, in *Observ. Med. Lib. 3. Cap. 34.* observed in the Carcase of a Woman, who died of a Cancer of the Uterus; for a livid and black Tumor, cover'd with Blood and Sanies, was, by membranous Filaments, every-where fix'd to the Uterus. *Arætaeus, de Caus. & Sign. Morbor. diuturn. Lib. 2. Cap. 2.* when treating of the Disorders of the Uterus, makes mention of a cancerous Ulcer in that Part; and informs us, that it proves mortal, after having for a long time afflicted the Patients: "For, says he, a putrid Matter flows from the Ulcer, which is not tolerable to the Patients themselves; and the Ulcer is irritated and exasperated by being touch'd, or by the Application of any Medicines whatever." 'Tis obvious, that he here describ'd a true Cancer of the Uterus, tho' he afterwards adds, "But a Cancer is by no means an Ulcer, but a hard incorrigible Tumor, which distends the whole Uterus." He seems to have meant this of an occult Cancer, and to have describ'd an ulcerated one, under the Name of a malignant and corroding Ulcer; for he immediately subjoins, "Both these Disorders are of a cancerous, chronical, and fatal Nature; but the Ulcer is far worse, both with respect to the Smell, the Pain, and every other Circumstance, than the Disorder not attended with Exulceration."

As to the Fauces; we have already observed, that Scirrhuses are frequently form'd in those mucous Follicles, which every-where occur in the internal Part of the Mouth, the Fauces, and the Pharynx; because by their means a Mucus, which is viscid, and from its Nature easily inspissated, is secreted and collected from the Blood. Besides, the numerous nervous Papillæ, distributed thro' the Surface of these Parts, sometimes degenerates into a malignant cancerous Fungus, as is already observed. Thus *Van Swieten* informs us, that he saw a great Part of the Palate, and the Whole of its pendulous Veil, become cancerous in an old Man, who, after enduring the high-

est Agonies, died of this Disorder. When a Cancer has spread its Roots deep in the Fauces, 'tis obvious the Disorder must be incurable: But, when it only possesses a small Part, it may possibly be extirpated, if due Care be used. In the *Epidemics* of *Hippocrates*, we are inform'd, that a Cancer in the Fauces was cured by the Application of the Cautery.

As to the Palate; the hard and callous Membrane which lines the Palate, as we have now observed, sometimes degenerates into a Cancer, which is generally incurable, unless when very small. The Difficulty of the Cure is increased, because, when this Membrane is destroy'd or corroded, the denuded Bones of the Palate are corrupted; whence the worst of Symptoms must be produced. For this Reason *Galen*, when explaining the thirty-eighth Aphorism of the fourth Section of *Hippocrates*, which discharges Attempts to cure occult Cancers, says, "They who cut or cauterize Cancers in the Palate, or in the Anus, or in the Breasts of Women, can never bring the Ulcers to a Cicatrix; but, by the violent Pain of the Cure, waste Patients till they die, who, without a Cure, would have lived longer, and endur'd less Pain."

As to the Armpits and Groin; the Vicinity of large Blood-vessels to these Parts renders it almost impossible to extirpate Cancers from them, without the Danger of a mortal Hæmorrhage. Under the Article *SCIRRHUS* it is observed, that *Hil-danus* happily extirpated a scirrhous malignant Tumor under the Armpit, after a Pain was perceived in it: But when these Disorders have degenerated into true Cancers, especially of the ulcerated Kind, 'tis sufficiently evident how dangerous such a Cure would be; since the Vessels about the Cancer are not only varicose, but also since it is greatly to be dreaded, lest it has already grown to the subjacent Vessels. We may also add, that the Taint is often lodged in the adjacent Glands; for which Reason, after a dangerous Extirpation, the Disorder would often appear afresh.

As to the Difficulty of curing Cancers of the Lips; it frequently happens, that, when the Lips are hurt, those round Bodies, dispersed thro' their Substance, are confused: Hence arise Scirrhuses, which often degenerate into the most malignant of Cancers. When also the tender Membrane, which covers the Lips, is wounded, their nervous Part rises in cancerous Funguses: When, therefore, the smallest Trace of such a Disorder appears, it is forthwith to be extirpated, either with Corrosives, which Method sometimes succeeds in small Cancers of these Parts, or with the Knife, which is far safer. So long as Cancers of the Lips have not grown to a great Bulk, they may be safely extirpated: But if they are neglected, if the Disorder is suffer'd to spread, and has already corroded the whole Lip, and adjacent Parts, it cannot, in this Case, be extirpated without great Danger; and, after the Extirpation, a fearful Deformity remains. But it is scarce credible, how large Cancers skilful Surgeons have sometimes extirpated from the Lips, and happily cured the Wounds, without leaving any considerable Deformity. Thus *Van Swieten* informs us, that he saw a Man, two Thirds of whose inferior Lip were cut out, and yet a sufficiently beautiful Cicatrice was form'd on the Wound. He also tells us, that in another, who would not submit to an Extirpation, he saw the whole Chin gradually corroded, and eaten away, before the Patient died.

In cancerous Tumors of the Lips, *Dr. Harris* recommends a Decoction of Elm-bark, and the Leaves of the Sanicula, to bathe the Part with. He also advises Turpentine upon a Pledget, apply'd to the Part, till it first grows softer, and then entirely wastes.

In case, therefore, of a Cancer, which cannot prudently be extirpated, all that can be done is,

First, To keep it quiet.

Secondly, To moderate the Symptoms.

When therefore a Cancer, known by the Signs already enumerated, cannot, by reason of the Conditions heretofore specified, be either extirpated by the Knife, or cured by Medicines, the Condition of the Patient is highly miserable, since he lodges a latent Enemy in his Bosom, who, by Causes which often no Prudence can prevent, may be easily irritated in such a manner as to rage with unrelenting Fury. This fatal Prognostic is not, however, to be discover'd to the Patient himself, but only to his Friends; and the Afflicted himself ought to be cheer'd with the agreeable Persuasion, that the Disorder, when judiciously treated, may be render'd tolerable, till the Patient's Death; for *Galen*, in his Commentary on the thirty-eighth Aphorism of the sixth Section of *Hippocrates*, in which the Cure of an occult Cancer is forbid, excellently observes, that we are not to abstain from such a Cure as mitigates and alleviates the Cancer, but from such Measures as have a Tendency to irritate it. The Whole, therefore, that is to be done in this Case, is to render the Disorder tolerable, to prevent its becoming more malignant, and, at the same time, to alleviate the Symptoms with which it is attended; the principal of which are Itching, Heat, and Pain;

Pain : But in what Manner, and by what Remedies, these Intentions are to be obtain'd, will be specified in what follows.

Such a Cancer is kept quiet,

First, By defending the Part from all external Injuries by Applications, wherein Lead and Narcotics are Ingredients.

We have already observed, that, whilst there is an Attrition of the adjacent Vessels against the hard Margins of the Scirrhus, by an Increase of the Motion of the Humours, an Inflammation is produced, and a Scirrhus, which was before benign, converted into a Cancer : And, from what has already been said, 'tis also obvious, that the Malignity of a Cancer may be increased by the same Cause ; so that Rest must, in this Case, be absolutely necessary. Absolute Rest, indeed, only obtains in a lifeless Carcase ; but a calm and moderate Circulation of the most laudable Humours, thro' pervious Vessels, is only here understood, that there may be no Irritation of the Cancer, either from an Increase of the Motion, or a Conveyance of acrid Substances to the Parts.

How prejudicial any external Irritation is to Scirrhuses, and the Cancers arising from them, we have already observed : The Part affected is, therefore, carefully to be defended from the Attrition of the Clothes ; and, as is heretofore taken Notice of, great Care is to be had, that occult Cancers of the Breasts be not too violently press'd by tight Stays, or irritated by the powerful Action of the Pectoral Muscle, which lies under them : Hence public Alms can never be better bestow'd than in supporting those Women, who, tho' labouring under occult Cancers, are yet reduced to a Necessity of working for a Livelihood. The best Method that can be taken is to cover the Part affected with a Piece of soft Leather, in order to prevent the Attrition of the Clothes. Plaisters are also recommended for the same Purpose ; but they ought to be of such a Nature as neither to prove hurtful by softening the Integuments too much, nor moving the Matter of the Cancer. In these Cases, therefore, Plaisters, in which Lead is an Ingredient, are only proper ; and these too must be prepar'd in such a manner, as not to adhere firmly to the Parts to which they shall be apply'd ; for, in that Case, it is to be apprehended, that the exhaling Liquid, pent up by an adhesive Plaister, should macerate the Integuments, and soon produce a Rupture in them. With these Narcotics are also generally mix'd, which, by their Efficacy, a little sooth the easily irritated Nerves dispersed thro' the Cancer and its Integuments, and thus allay the Itching, and alleviate the lancinating Pains. The *Emplastrum Diapompholygos* of the Shops, prepar'd of the Oil of Nightshade, and Calx of Lead, is of singular Service in Cases of this Nature.

Take of the pure and newly express'd Juices of the Leaves of Henbane, Garden-poppy, and Water-hemlock, each four Ounces : Boil these over a gentle Fire ; inspissate ; and then mix with them, of white Wax, eight Ounces ; and of Oil of Roses, one Ounce. Make up into a Plaister. Or,

Take of Sugar of Lead, Ceruss, and an Amalgama of Quick-silver and Lead, each two Drams ; of white Wax, four Ounces ; of the Oil of Roses, three Drams. Make up into a Plaister. *Boerhaave Mat. Med.*

The following Mixture has been much esteem'd by some Practitioners, for quieting an occult Cancer, and preventing it from ulcerating.

Take four Ounces of Lapis Calaminaris, calcin'd in a Charcoal Fire, and quench'd three times in a Pint of White-wine ; one Ounce of white Tutty, calcin'd in a Crucible, and quench'd three times in a Pint of red Rose-water ; then the Lapis Calaminaris and Tutty are to be powder'd separately, and put into their respective Liquors, which must be mix'd.

Cloths, impregnated with this Mixture, are to be worn perpetually on the Part affected, being frequently renew'd.

Dr. *Harris* approves of the red *Lead Plaister* above all others, and says, Dr. *Harvey* had a great Opinion of it ; and that he has used this Plaister in Pains of the Breast, which have threaten'd a Cancer, with great Success.

The Ochre which is left in the Chancels of some mineral Springs, and the Mud of them, are recommended, as doing great Service, as Topics in Cancers.

Secondly, By diminishing, correcting, or averting the known Cause, which is done by lenient Purges of mild Vegetables, and Mercurials, exhibited in small and frequent Doses.

For all the Causes already enumerated, since they change a Scirrhus into a Cancer, may, if they continue to act, or are increased, change an occult into an ulcerated Cancer. These

VOL. II.

Causes, therefore, which are known by their Signs, ought to be removed, or at least diminish'd ; and, if this cannot be obtain'd, their Action ought to be averted from the Part affected as much as is possible. Nothing is more prejudicial to a Cancer than the Acrimony of the Humours, since by its means a benign Scirrhus may soon degenerate into a Cancer, as we have before observed. We are, therefore, diligently to inquire, whether there is an Acrimony of the Humours, and of what Kind it may possibly be ; after which the Acrimony ought to be corrected by Medicines opposite to its particular Nature ; for different Remedies are requir'd for correcting acid, muriatic, putrid, rancid, and oleous Acrimonies. To avert the morbid Matter lodg'd in the Humours, gentle Purgatives are of excellent Service, and such as, without exciting violent Commotions in the Body, attenuate and evacuate the Humours. The mildest mercurial Preparations, mix'd with Purgatives, are principally recommended in these Cases, on account of their resolvent Quality ; but we must take care, lest, by an imprudent Use of them, we excite a Salivation, which, in this Case, would prove prejudicial. If any Signs of Putrefaction are discover'd, as it often happens in a Scurvy, a Decoction of Tamarinds, with Sena-leaves, Cremor, and Crystals of Tartar, and other Things of a like Nature, are beneficial. But that the Commotions excited in the Body, even by gentle Purgatives, may be allay'd, it is proper to give a mild Opiate, after the Operation of the Purgatives is at an End. But how great the Use of Purgatives is, in preserving occult Cancers from degenerating into ulcerated ones, we learn from *Galen*, who, in *Libell. quas decet purgare*, &c. tells us, that about the Beginning of the Spring he, every Year, purg'd a certain Woman pretty severely, who had a Disposition or Tendency to a Cancer in her Breast, with a Medicine which purg'd black Bile ; and he observes, that, by an Omission of the usual Purgation, a Pain arose pretty deep in her Breast ; which was a certain Sign, that the Malignity of the cancerous Humour was then increased. *Boerhaave*, in a Cancer, recommends the following Preparations :

Take of Resin of Jalap, six Grains ; Diagrydium, seven Grains ; unwash'd diaphoretic Antimony, twenty-four Grains. Make up into a Powder.

Take of Mercurius Dulcis, fifteen Grains ; of Diagrydium, twelve Grains. Make into a Powder, to be taken once a Week.

Galen recommends Purging, with Epithymum in Whey, or his own Hiera, which *Aetius* calls *Hiera Galeni*. *Aetius* commends the Hiera Lagodii for purging off the melancholic Humours. *Harris* says the *Confect. Hamec.* is excellent for this Purpose.

Thirdly, By diluting, mildly aperient, and subcalcescent Internals.

The whole Intention is, in this Case, to procure a calm and equable Circulation of the Humours, which is obtain'd by diluting them more, and rendering the Vessels pervious. There are, then, Medicines which dilute and attenuate, without, at the same time, increasing the Motion of the Humours : But Water alone is almost the only Fluid which dilutes, as is observed under the Article *ONSTRUCTION*. To this Water must, at the same time, be added such Substances as are possess'd of an attenuating Quality, and by their mild Nature correct all Acrimony. This Intention is therefore excellently answer'd by Decoctions of the Roots of Burdock, China, Vipers-grass, Sarsaparilla, and Dogs-grass ; as also by Infusions of Agrimony, Betony, the Flowers of Marshmallows, Mallows, Mullein, Elder, and red Poppies ; for thus a diluting Vehicle is convey'd to the Blood. The Humours are resolved, and their Acrimony is corrected, by attenuating and gently obtunding Ingredients ; and whatever is noxious is carried off by Urine, or a Diaphoresis : Hence these Medicines are, by Physicians, call'd Cleaners of the Blood. But tho' Salts bear a great Character in the List of attenuating Medicines, yet those of the more acrid Kind are not proper in these Cases. Those of a mild and subcaline Nature are only to be exhibited, such as subiated Nitre, and Sal Polychreston ; in which the fix'd Nitre, at that time alkaline, is so chang'd by the acid Vapour of the kindled Sulphur, as to become less acrid, tho' it still continues to partake of the Nature of an Alkali : Hence these Salts are then call'd subcaline Salts. These are principally chosen, because, in the Cure of a Scirrhus, alkaline Salts, corrected by the oleous Acid of *Rhenish* Wine, have so often proved beneficial. But since there are, in the Shops, a sufficient Number of Simples, whose mild attenuating Quality is well enough known, the Formæ may be varied at Pleasure ; lest the continued Use of a Remedy should create a Nausea in the Patient, whilst, in this Case, the curatory Indication continues long the same.

The Remedies specified in *Boerhaave's Mat. Medica*, are,

Decoctions of Burdock,
China-root,
Fennel,
Parsley,
Sarsaparilla, and
Vipers-grass. Or,

Take of unwash'd diaphoretic Antimony, eight Grains ;
Sperma Ceti, one Dram : Mix up into a Powder, to be
divided into two Doses, one of which is to be taken in the
Morning, and the other at Night.

Venice Soap, dissolved in any proper Menstruum, or made
into Pills, and given to a Dram for a Dose, twice a Day, is
recommended as a Specific in the Cancer. *Turner's Surgery.*

In this also the Leaves of the Solanum Lethiferum, as a To-
pic, are accounted Specifics.

Dr. Stahl, first Physician to the King of Prussia, recom-
mends the Erysimum, or Verbena Foemina, as a good Medicine
for scirrho-cancerous Tumors, both when taken internally, and
apply'd to the Tumor. Mr. Bingert, Surgeon at Berlin, com-
municated two Cases, wherein its good Effects have appear'd.
Act. Medic. Berolin. Dec. 3. Vol. 1.

That Part of a Walnut, that lies betwixt the Lobes of the
Kernels, is said to cure, or at least to prevent Cancers. It must
be dried and powder'd.

An exact Milk-diet always relieves, and sometimes cures
Cancers. *Wynter's Cycles Metastyncriticus.*

Dr. Harris says he cured a Lady of a Cancer in a few
Months, by directing a Powder of Lignum Sanctum, Sarsapa-
rilla, and yellow Saunders, to be taken three times a Day, in
common Water. By these means the Pain, Tumor, and livid
Colour vanish'd, and the Cancer entirely disappear'd. She used
no Topics but Flannel.

Fourthly, By avoiding whatever may act as a Cause, whe-
ther taken internally, or apply'd externally.

An Increase of Motion in the Humours of the whole Body,
or of the Part affected, any Acrimony of the Juices, any Irri-
tation, are, as we have already observed, the principal Causes
which change a Scirrhus into a Cancer. All these Things are,
therefore, carefully to be guarded against, both by a proper Choice
of Diet, and suitable internal and external Remedies. And as
an atrabilious Viscidity of Humours not only lays a Foundation
for the Generation of Scirrhuses, but also adds Malignity to
them, when form'd, we must take particular Care to abstain
from such Things in Food as may either produce or increase this
atrabilious Viscidity of the Juices. The Diet must, therefore,
be such as under the Article SCIRRHUS is directed for an in-
curable Scirrhus. And because, as we have already observed,
violent Passions, especially Sorrow, are, in these Cases, so pre-
judicial, the Patients are to be cheer'd with agreeable Hopes,
that they may not be rack'd with the constant Dread of immi-
nent Danger. If these Measures are duly observed, this dread-
ful Calamity may be alleviated, and kept under not only for
some Years, but often till old Age; when, by the common
Fate of Humanity, or the Attack of other Diseases, the mis-
erable Patients are cut off, and snatch'd from the Pains which
daily threaten'd them. This is all which, in this Disorder, can
be expected from any Art hitherto known.

The Symptoms are moderated by the same Means by which
the Cancer is kept quiet, except that Opiates are requir'd in
case of Pain.

For all the Symptoms, which happen in an occult Cancer,
depend only on an Increase of its Malignity. If, therefore, by
the Method above describ'd, the Cancer is preserv'd in the same
State, the present Symptoms will be alleviated, and future ones
prevented. The principal Symptom is Pain, arising from a
Dilaceration of the Integuments, in consequence of an Increase
of the Tumor; or from the Acrimony of the Cancer corroding
the live Nerves distributed thro' its Substance. We cannot
often remove the Cause of the Pain, in which Case nothing re-
mains to be done, but, by the Use of Narcotics, so to obtund
the common Sensory as to remove the Sense of Pain, tho' its
Cause continues, and guard against some Effects of Pain, which,
in this Case, are to be dreaded; for, unless this Method is pur-
sued, the Patient will be seiz'd with Watchings, Restlessness,
Anxiety, and a Fever, and all the Symptoms will soon be in-
creased.

An exulcerated Cancer, which will not admit of Extirpa-
tion, may frequently be mitigated, by keeping it clean, by
applying to it extremely mild Preparations of Lead, and by
the Methods above specified.

When a Cancer, upon breaking the Integuments, becomes
exulcerated, it affords a melancholy Prospect to Physicians, and
is often so terrible an Appearance, that I have seen, says *Van*
Swieten, old and intrepid Surgeons, who could scarcely look

upon it without Tears; for the highly fetid Smell, the retorrid
Lips, and the absolute Impossibility of a Cure, are Circum-
stances which move even those, who, in performing the most
cruel Operations, are untouch'd with the agonizing Shrieks of
the Patients. However, tho' I am of Opinion, that no one would
willingly chuse to be a Spectator of these Calamities, yet that
Love of our Neighbour, which is interwoven with our Frame,
ought to prompt us in our Endeavours to alleviate an incurable
Disorder, and not permit us to render the Miserable still more
so, by abandoning them.

An highly acid Ichor, which becomes daily more malignant,
and which, as has already been observed from *Actius*, is more
deleterious than the Poison of venomous Animals, corrodes the
painful Surface of the Cancer, if it is long left upon it; and,
diffusing itself thence, preys upon all the adjacent Parts. For
this Reason the Part affected ought to be cleansed several times
a Day; and the adjacent Parts defended either with soft Oint-
ments, or Plaisters in which Lead is an Ingredient, lest they
should be corroded by the discharged Sanies. The best Method
is, four times at least in twenty-four Hours, to absorb the col-
lected Poison with Pledgets, gently warm'd: Then let the
whole Surface of the exulcerated Cancer be cover'd with the
like Pledgets, slightly spread over with the *Unguentum Nutri-*
tum, composed of Vinegar of Litharge and Oil, mix'd toge-
ther; for tho' dry Pledgets would best imbibe the discharged
Ichor, yet they would adhere to the Ulcer, and, by being after-
wards pull'd off, excite the most intense Pain. Thus the free
Access of the Air is prevented, and the Parts are hinder'd from
becoming dry; and the Strength of the Vinegar resists Putre-
faction, whilst its Acrimony is corrected by the Addition of the
Lead. Pinguious Substances are observed to be prejudicial, since
they block up the Pores of the Ulcer, and by that means pre-
vent the Discharge of the Sanies. Over these Pledgets we are
to apply a Plaister of the *Emplastrum Diapompholygos*, with a
large Number of Holes cut in it, that the Sanies may be free-
ly discharg'd. Over these Holes dry Lint is to be apply'd, in
order to imbibe the discharg'd Ichor. These Dressings are to be
secured with a gently apply'd Bandage, since a strong Pressure,
on the Part affected, would immediately exasperate all the Sym-
ptoms.

But, as a violent Putrefaction generally accompanies an exul-
cerated Cancer, this is also to be prevented as much as possible.
Vinegar, Sea-salt, and Sal Gemmae, efficaciously correct every
Kind of Putrefaction; but, at the same time, an ulcerated
Cancer is highly irritated by all acrid Substances. *Hildanus*, in
Observat. Chirurg. Cent. 3. Observ. 86. informs us, that a Sur-
geon apply'd to a cancerous Breast *Unguentum Aegyptiacum*,
in order to correct the fetid Smell, and check the fungous Lu-
xuriance of the Cancer; but the Disorder was by that means so
irritated, that, in a short time, the whole Breast was corroded
to the very Ribs: Hence 'tis evident, how great Prudence and
Circumspection are necessary in Cases of this Nature. But all
these Medicines are to be apply'd so weak to an ulcerated Can-
cer, as not to prove prejudicial by their Acrimony. Vinegar,
diluted with twenty times the Quantity of Water, with an Ad-
dition of a small Quantity of Sea-salt, may be endur'd by the
Patient; and it will be of singular Service to wash the whole
Surface of the Part affected with such a Liquor, tepid, every
time the Cancer is cleansed. Since Spirit of Sea-salt so power-
fully resists every Kind of Putrefaction, it will, in this Case, be
of great Use, provided it be diluted with so large a Quantity of
Water, that it will scarce create any Pain when dropt into the
Eye. *Van Swieten* informs us, that, by the Use of this Medi-
cine, he preserved an ulcerated Cancer, in the Breast of a poor
Woman, in other respects of a sound Constitution, from dege-
nerating into a worse State, for fifteen Months; and that, in
the Margins, he saw some Traces of a Suppuration, by which
some Part of the fungous Mass, being separated, fell off; whilst
at the same time the Bottom of the Ulcer appear'd sufficien-
tly clean: But his great Hopes were afterwards disappointed,
whilst, the Malignity being increased, he could no longer
check the Putrefaction by this mild Remedy; and the Dis-
order was forthwith exasperated by more acrid Applications;
upon which the poor Woman died, after having been
afflicted with an ulcerated Cancer for two Years.

Hildanus, in his *Observat.* ingenuously confesses, that he was
deceiv'd whilst treating an ulcerated Cancer of the Tongue with
various Remedies; the Cure was carried on with such Success,
that the Disorder was not only daily alleviated, but also the
whole Tumor disappeared after a plentiful Hemorrhage, and a
copious Discharge of a cadaverous Sanies. The Malignity being
removed, the Ulcer discharged a laudable Sanies, and the Flesh
was gradually growing up, not of a livid Colour, but sound
and reddish; so that the Place seem'd almost covered with a
Cicatrix, a small Fissure being only left. When he thought
every thing was now safe, a scrophulous Tumor, lodged under
the inferior Jaw, becoming daily larger, communicated a fresh
Taint to the Tongue, which in a few Days swell'd so as not
only to fill the whole Cavity of the Mouth, but also to hang
out beyond the Teeth; so that *Hildanus*, before the Patient's
Death,

Death, saw the Tongue miserably corroded, and the superior join'd to the inferior Teeth. These lamentable Cases inform us, how terrible a Disorder an ulcerated Cancer is, since, after so fallacious a Truce, it often rages with redoubled Fury. Perhaps, from Instances of this Nature, some faint Hopes may be conceived, that the Separation of a Cancer from the sound Parts is not absolutely impossible; tho' the Methods, and various Medicines, by which this Intention is answered, are hitherto unknown. How justly would the Man be celebrated, who should discover this Method! but how justly would he deserve Punishment, if, from mercenary Views, he should conceal it from the World!

To these Medicines which resist Putrefaction, we may very properly add such as, by their narcotic Quality, are able to mitigate the burning Pain, even when apply'd externally. For this Purpose *Galen*, in *Metb. Med. Lib. 2. Cap. 2.* recommends the Juice of Nightshade; others extol Hemlock and Water-hemlock. *Paulus Aegineta*, in *Lib. 4. Cap. 26.* for removing the Pain of ulcerated Cancers, orders a double Linen Cloth, soak'd in the Juice of Nightshade, to be apply'd to the Part affected, and soft Wool, dipt in the same Juice, to be laid over it, taking care that they do not become dry. Various Fomentations, of the like Intention, may be prepared of the Leaves of Henbane, Hound's-tongue, and Poppies, infused in Water, with an Addition of Vinegar and Salt, tho' in a small Quantity, lest by their Acrimony they should augment the Pain, and exasperate the Disorder, which is so easily irritated. With the same Intention a few Grains of Opium may be mix'd with these Fomentations. With respect to Foods, the softest Pot-herbs are only proper, Flesh-broths, and Preparations of Milk; but all such Substances as are of difficult Digestion, or may prove hurtful by their Acrimony, are to be abstain'd from, as has been already observ'd. The liberal Use of the Infusion of the Leaves of Elder and wild Poppies is generally highly beneficial.

Heister, in an open or exulcerated Cancer, recommends as Applications, Oil of Myrrh per Deliquium, or Essence of Myrrh with Essence of Amber, or Lime-water, either alone or with a small Quantity of Sugar of Lead. Or,

Take of the Vinegar of Litharge, an Ounce and an half; and of the Oil of Roses or Nightshade, one Ounce: Mix up into an Ointment, in a Leaden or Glass Mortar.

Or,

Take of the Waters of Roses, Elder-flowers, and wild Poppies, each two Ounces; of the Sugar of Lead, and Essence of Opium, each one Ounce; and of the Spiritus Vini Theriacalis, two Ounces: Mix all together.

Or,

Take of the Waters of Frogs-spawn and Nightshade, each three Ounces; of calcin'd Lead, one Ounce; and of the Sugar of Lead, half an Ounce: Mix all together.

Instead of these we may also use some vulnerary Decoction, prepared of Horehound, Agrimony, and Paul's Betony, or the Juices of Nightshade and Plantain; for at every Dressing the Cancer may commodiously be cleansed with these, and Lint dipt in them may be laid over the Dressings; but when the Pains are very intense, a larger Quantity of Opium, or of the Essence of Opium, is to be mix'd with them; or pure Essence of Opium, laid on Lint, may be apply'd to the Part affected, since, in some Cases, the Pains cannot be alleviated by any other Method. For soothing the Pain of the Wound more effectually, we must prepare or dilute the Essence of Opium, not with Spirit of Wine, but rather with proper distil'd Waters, such as those of Nightshade and the Flowers of wild Poppies. *Dionis* orders a Piece of raw Veal to be apply'd to the Part affected. The sprinkling dry Powders upon Cancers is found to be a Piece of Practice not so advantageous as in some other Ulcers; but calcin'd Lead apply'd to the Part, with Mucilage of Linseed, or of Flea-bane, surprisingly contributes to mitigate the Pain. Tho', in the Application of each of these, a grateful Variation were to be desired, yet the Physician is principally to exhibit such as are best accommodated to the State and Condition of the Patient. The *Aqua Sclopetaria*, or Eau d' Arquebuse, distil'd rather from Nightshade-water than Wine, and apply'd warm to the Part affected, is also of singular Service in answering this Intention.

Before the Amputation of a Cancer is perform'd, the Body must be prepar'd by a proper Diet, and Medicines which are strengthening, and opposite to the Cause of the Cancer.

If an ulcerated Cancer is lodg'd in such a Part of the Body that the Surgeon's Hands can have Access to it; if it has not as yet grown to the adjacent Parts; if in other Parts there are not Scirrhuses sound, which cannot be extirpated; and if there is no Suspicion, that the like Disorder lies concealed in the internal Parts of the Body; it is, in this Case, to be extirpated as soon as

is possible, lest, by being suffered to continue, its Malignity should be increased, or the adjacent Glands affected. But, in extirpating a Cancer, the following Cautions are to be observ'd:

Since this is often a highly cruel Operation, and since, after the Extirpation, a pretty broad Wound sometimes remains, it is proper, before the Operation, to recruit the Body by mild balsamic Aliments, and to restore the Strength which is impair'd with Pain, Fear, and Watchings, by grateful Cordials, which, at the same time, do not excite violent Commotions; for, by this means, the Consolidation of the Wound made will afterwards succeed more happily. We must also remember, that such things are to be exhibited as are opposite to the known Cause of the Cancer: if, for Instance, a putrid Scurvy, predominating in the Body, has chang'd a benign Scirrhus into an ulcerated Cancer, all farinaceous Substances, soft ripe Fruits, or such as are gently acid, are serviceable. If the Disorder proceeds from an atrabilious Habit, Honey and the Juices of Grasses are proper, in Conjunction with the former; but if the Symptoms inform us, that an austere Acid predominates in the Body, Flesh-broths and soft pinguious Substances are to be exhibited. But when the Cancer, from its own Nature, tends to a violent Putrefaction, Acescents alone are in this Case generally exhibited. But the Virulence of the Disorder is often so great, that there is not a proper Time allow'd for correcting the known Acrimony of the Humours before the Extirpation. Since 'tis to be apprehended, that the ulcerated Cancer may affect the adjacent Parts, or spread its Roots deep, and thus render the Extirpation impracticable; in this Case it is advisable to cut out the Cancer immediately, and afterwards, by proper Food, and well-chosen Remedies, to correct the known Cacoehymy of the Humours.

As the various Methods of amputating a Cancer are describ'd under the Article AMPUTATIO, I shall only here observe, that 'tis *Boerhaave's* Advice to dress the Part, after Amputation, but seldom, and to prevent the Bandage from pressing too forcibly upon it, taking care first to evacuate prudently the neighbouring Vessels of their Blood.

Since the Blood-vessels adjacent to the Cancer are generally tumid and distended with black Blood, as we have already observ'd, it seems proper, after the Extirpation, to permit this Blood, which in some Cases has stagnated long in the Vessels, to be freely discharged, and not immediately to stop the Hæmorrhage; for 'tis justly to be dreaded, lest this Blood, lodged so near the Cancer, has contracted something of a malignant Nature, by which the like Disorder may again be produc'd in other Parts of the Body; for it has been already observ'd, that an ulcerated Cancer, by propagating the Contagion to the communicating Glands, excites occult Cancers; nor, on these Occasions, will the Patients sustain any Injury, though some Ounces of Blood should be discharged. *Part, Lib. 7. Cap. 31.* for the sake of Caution, orders the varicose Veins distended with black Blood to be every-where pressed, that they may be entirely evacuated. Then he used the actual Cautery, partly with a View to stop the Hæmorrhage, and partly in order to destroy the latent Remains of the Disorder, if there should happen to be any. This cruel Method of stopping the Hæmorrhage by Cauteries is almost out of Date at present, since the same Intention may be safely answer'd by milder Remedies; and, if the Cancer is entirely extirpated, there is no Necessity for cauterizing the crude Wound in order to remove its Remains. We have, however, before observed, that the celebrated *Ruysh* extirpated a Cancer of the Tongue, after it had appeared a second time, and cauterized the Part, with Success.

Upon the Extirpation of the Cancer the Wound is crude, and pretty broad, if the Cancer has been large, and the whole Integuments cut off along with it; but if the Extirpation has been made after laying back the Integuments, the Wound will be smaller, and sooner cured, as is observ'd under the Article SCIRRHUS. 'Tis proper to dress the Part seldom, lest the necessary Nourishment of the Body should be subtracted by too great a Discharge, and the Patients thus die of a Marasmus. We must also take care, lest the Pus, being too long left on the Surface of so large a Wound, should be reabsorb'd by the minute Veins, and thus contaminate the Blood with a purulent Cacoehymy, whence the worst of Symptoms would be produced afresh. But, as by this Method much of the Substance of the Body is lost, all those Cautions are to be observed which are proper in Wounds with Loss of Substance. See the Article VULNUS. But, when the Wound is dress'd, a mild and gentle Cleansing of the Part is necessary, lest, by rough handling, the tender Pulp of the sprouting Vessels should be destroy'd, as is also observed under the Article VULNUS.

After the Extirpation of a Cancer by Amputation, the Patient must persist, for a long time, in the Use of the Diet and Medicines which are proper in a present Cancer.

Since nothing can happen either more disgraceful to the Physicians, or more terrible and afflicting to Patients, than that, after submitting to a cruel Operation, the same Disorder should again appear in other Parts of the Body; the Patients are, therefore,

therefore, long to persist in the Use of the same Aliments and Medicines as are known to be opposite to the Causes of the Cancer, especially if these are internal; for when a Cancer is produced in a sound Body by an external Cause, such as a Contusion, for Instance, after its Extirpation there is hardly any Danger of its appearing afresh. But, even in this Case, a rigid Care is preferable to a supine Negligence; and Patients, who have once felt the Smart of this Disorder, are easily prevailed upon to obey the Directions of the Physician. The Use of all those things already mentioned is, therefore, long to be persisted in.

From what has been said under this Article, it evidently appears, that very great Disorders may sometimes arise from Cancers, when situated in a Part where they cannot be extirpated.

Since, from what has been said, it is obvious, that Scirrhuses and Cancers are sometimes found in the internal Parts of the Body, it is evident, that dreadful Symptoms must be produced, whilst a corroding Sanies flows from the cancerous Ulcer, and preys upon the Viscera. Many, and those highly obstinate, chronical Disorders draw their Origins from Scirrhuses of the Viscera; and it is evident, from Instances related under this Article, and the Article SCIRRHUS, that intense Pains, surprising Corrosions of the Viscera, and, after the most cruel Torments, sudden Death, have been produc'd by a Cancer preying upon the internal Parts of the Body.

CARDAMANTICE. The same as **CARDAMINE**, which see.

CARDAMELEUM, καρδαμύλειον. The Name of a Medicine mention'd by *Galen*, *C. M. P. G. Lib. 7. Cap. 7.*

CARDAMINDUM. See **ACRIVIOLO MAXIMA ODORATA.**

CARDAMINE, Offic. Ger. Emac. 259. Ger. 201. **LADIES-SMOCK**, Raii Hist. 1. 814. Synop. 3. 299. Merc. Bot. 1. 25. Phyt. Brit. 20. Mer. Pin. 20. *Cardamine pratensis, magno flore*, Tourn. Inst. 224. Elem. Bot. 191. Boerh. Ind. A. 2. 16. Dill. Cat. Giff. 49. Rupp. Flor. Jen. 62. Buxb. 54. *Nasturtium pratense, magno flore simpliciter*, Hist. Oxon. 2. 233. *Nasturtium pratense, magno flore*, C. B. Pin. 104. *Nasturtium pratense majus, sive Cardamine latifolia*, Park. Theat. 825. *Iberis Puschii, sive Nasturtium pratense sylvestre*, J. B. 2. 887. Chab. 282. **MEADOW CRESSES.**

This is a small tender Plant, growing about a Foot high, having its lower Leaves pinnated, each Leaf consisting of four or five Pair of small roundish Pinnæ, not always set directly opposite, having one single, that at the End larger than the rest. The Stalk is smooth and round, bearing Leaves which are less, and have narrower Pinnæ; the Flowers grow several together at the Top, each consisting of four roundish Leaves, of a white Colour, or, in some Plants, having a Dash of Purple, with darker Veins running thro' them. The Seed is small and reddish, growing in long slender Pods. The Root is small and fibrous. It grows every-where in the Meadows, and flowers in April.

This Plant, as it somewhat resembles Water-cress, so it agrees with it in its Qualities, being heating and warming, and good for the Scurvy; and, where Water-cresses cannot be had, may supply their Place. It is seldom us'd in the Shops. *Miller's Bot. Off.*

CARDAMOMUM. Cardamums.

The best Cardamums are imported from *Gomagene, Armenia*, and the *Bosphorus*; They grow also in *India* and *Arabia*. Choose what is full, close, and difficult to be broken. What has not these Properties, is stale and decay'd. It ought also to have a piercing Smell, with an acrid and bitterish Taste.

They are of a heating Quality; drank in Water, they are of Service in the Epilepsy, Cough, Sciatica, Palsy, Ruptures, Convulsions, and Gripes, and expel the broad Worm; taken in Wine, they are effectual in Disorders of the Kidneys, and Difficulty of Urine; and are a Remedy against the Poison of the Scorpion, and all other venomous Creatures; a Dram, taken with the Bark of the Root of the Bay-tree, breaks the Stone; us'd as a Suffumigation, they destroy the Fœtus; and, rub'd on the Parts with Vinegar, they cure the Psoa. They are a common Ingredient in Ointments and Antidotes, and serve to inspissate them. *Diosc. Lib. 1. Cap. 5.*

We have three sorts of Seeds in the Shops called by this Name. The first is, The

CARDAMOMUM MAXIMUM.

Grana Paradisi, Offic. Ger. Emac. 1542. *Grana Paradisi Officinarum*, C. B. Pin. 413. *Cardamomum majus*, Barr. Icon. 571. Obs. 1394. Matth. Valg. 27. *Cardamomum Arabum majus*, Ger. 1358. *Cardamomum, Granum Paradisi, Melleguetta*, Chab. 128. *Cardamomi genus maximum, Grana Paradisi sive Melleguetta*, J. B. 2. 204. *Melleguetta*, Jonst. D. *Melleguetta sive Cardamomum maximum, & Grana Paradisi*, Park. Theat. 1576. *Melleguetta, Grana Paradisi Officinarum*, Raii Hist. 2. 1205. **GRAINS OF PARADISE.** Dale.

These are squarish, corner'd, reddish-brown Grains, white within, of a hot biting Taste, but not so aromatic as the Car-

damums. They grow in roundish Pods, in the Shape of an unripe Fig, and come from *Guinea*; but we are ignorant of the Plant they grow upon.

They are hot and drying, warm the Stomach and Bowels, help the Colic, and are of Service in paralytic and nervous Affections. *Miller's Bot. Off.*

They have the same Virtues as Pepper, and are a Specific in all paralytic Diseases. Dale.

The second is, The

CARDAMOMUM MAJUS, Offic. Bont. 127. Raii Hist. 2. 1204. *Cardamomum majus vulgare*, Ger. Emac. 1542. Park. Theat. 1576. *Cardamomum majus Officinarum*, C. B. Pin. 413. Jonst. D. Ger. 1358. *Cardamomum cum siliquis longis*, J. B. 2. 205. Chab. 148. *Cardamomum medium*, Barr. Icon. 571. Obs. 1595. Matth. Valg. 27. **GREAT CARDAMUMS.** Dale.

These are long, roundish, somewhat triangular Pods, full of corner'd, reddish-brown, hot, aromatic Grains.

They grow in the Island of *Java*, in the *East-Indies*, and from thence use to be brought to us; but we have had none come over for many Years, being now grown quite out of Use, and not to be met with in the Shops. *Miller's Bot. Off.*

The Seed is the Part in Use, which is of a heating and drying Quality, comforts the noble Parts, attenuates, discusses Flatulences, helps Concoction, provokes Urine and the Menstrues, helps Shortness of Breath, and removes Obstructions of the Liver, Spleen, and Mesentery. Dale.

The third is, The

CARDAMOMUM MINUS, Offic. Bont. 126. Ger. 1358. Raii Hist. 2. 1204. Barr. Icon. 571. Obs. 1396. Matth. Valg. 27. Boerh. Ind. A. 2. 128. C. Comm. Flo. Mal. 71. Bod. in Theoph. 1014. *Cardamomum minus vulgare*, Ger. Emac. 1547. Park. Theat. 1576. *Cardamomum simpliciter in officinis dictum*, C. B. Pin. 414. *Cardamomum cum siliquis seu thecis brevibus*, J. B. 2. 205. *Elettari* 2. Hort. Mal. 11. 9. Tab. 6. *Ensal*, Herm. Mus. Zeylan. 66. **COMMON CARDAMUM.** Dale.

These are small triangular Capsulæ or Pods, growing on little short Stalks, tough, and full of Sticks, containing several corner'd, brown, small Grains, of an hot, spicy, aromatic Taste, and a pleasant Smell.

They are brought to us from the *East-Indies*, but we have no certain Knowledge what sort of Plant they belong to. They are in frequent Use, being of a warming Nature, comforting and strengthening the Stomach and Bowels, helping Digestion, expelling Wind, and are good in all Distempers of the Head and Nerves. They provoke Urine and the Menstrues, and are of Use in the Jaundice. *Miller's Bot. Off.*

The Seeds are in Use, which have the same Virtues as the great Cardamums. Dale.

The Anomum is reckon'd a Species of Cardamum. See **ANOMUM.**

CARDAMON. The same as **CARDAMINE**, which see. *Blancard.*

CARDEL. Mustard. *Johnson.*

CARDIA, καρδία. The Heart; but it generally signifies the Left and superior Orifice of the Stomach. See **VENTRICULUS.** Sometimes it is us'd to express the Pith of a Tree.

CARDIACA, in Botany, is a Plant thus distinguish'd.

CARDIACA, Offic. J. B. 3. 320. Raii Hist. 1. 571. Synop. 3. 239. Park. Theat. 41. Tourn. Inst. 186. Elem. Bot. 155. Ger. 569. Emac. 705. Boerh. Ind. A. 180. Dill. Cat. Giff. 122. Buxb. 55. Phyt. Brit. 21. Mer. Pin. 20. Rivin. Irr. Mon. *Cardiaca Lycopus Ruellii*, Chab. 437. *Marrubium Cardiacum dictum*, Hist. Oxon. 3. 378. *Marrubium Cardiacum dictum, forte primum Theophrasti*, C. B. Pin. 230. **MOTHERWORT.** Dale.

The lower Leaves of *Motherwort* are pretty large and broad, roundish towards the End next the Foot-stalks, which are pretty long: They are deeply cut in on the fore Part, having three sharp Points, the middlemost being longest, somewhat hairy and high-vein'd, green above, and whitish underneath. The Stalk is four-square, woody, and brittle, having two smaller and tripartite Leaves at a Joint, growing likewise on long Foot-stalks. The Flowers come forth at the Joints with the Leaves, many growing together, Whirl-fashion, in hard rough Calyces, which end in several prickly Points: They are of a reddish purple Colour, with a Labella cut into three Parts, and a round Galea, and are somewhat woolly on the Outside. The Seeds grow four together in each Calyx. The Root is small and slender, creeping in the Ground. It grows in wall Places and Lanes, and by Wall-sides; and flowers in June. *Miller's Bot. Off.*

This Plant is call'd *Cardiaca*, because it relieves in Faintings, and Disorders of the Stomach, the superior Orifice of which is call'd *Cardia*; for, according to *Schroder*, in his *Pharmacopœia*, it is of singular Service in Distentions of the Hypochondria, and Disorders of the Stomach in Children. The Herb is of a highly bitter and penetrating Taste, a Circumstance which indicates its stimulating, inciding, resolvent, and aperient Qualities;

lities; in consequence of which it is proper in Diseases proceeding from a Redundance of Phlegm or viscid Juices: Hence it is exhibited with an Intention to provoke Urine, promote the Menfes, and facilitate difficult Labours. A Decoction of Motherwort, and the Powder of it, mix'd with Sugar, are, by Ray, said to be Medicines of uncommon Efficacy in Palpitations of the Heart, Affections of the Spleen, and hysteric Disorders. *Matthioli*, on *Dioscorides*, affirms, that a Spoonful of its Powder, drank in Wine, is of singular Service in difficult Births.

Ettmüller informs us, that this Plant, cut down, and, by boiling, reduced to the Form of a Cataplasm, is, in consequence of its inciding and resolvent Qualities, very good against those Disorders of Children produced by a mucous Acid, and the Flatulencies arising from it, if applied to the Region of the Stomach and Hypochondria.

A Water distil'd from Motherwort, with Oak of *Jerusalem*, is used in Inflations of the Hypochondria of Children. *Simon Pauli*, in his *Quadrupartitum Botanicum*, orders its Leaves to be boil'd in Oil of Wormwood, and of bitter Almonds, and applied to the Navel, in order to kill Worms of the Intestines.

Motherwort is also used by Farriers in Diseases of Cattle and Horses; and, according to Ray, in his *Catalogus Plantarum Angliæ*, it was exhibited with singular Success when the Murrain raged among Horses in *England*.

CARDIACA PASSIO. The Cardiac Passion, in *Nosology*, is a Disorder frequently mentioned by the Antients, but by the Moderns more frequently treated of under the Name of Syncope.

Gælius Aurelianus gives the following Account of this Disorder.

Some divide the Cardiac Passion into two Species, one of which they call *common*, and the other *proper*. The former of these is, when there is a preternatural Substance in the Stomach, and Entrance into the Belly, with a subsequent biting Pain of these Parts, as we are inform'd by *Hippocrates*, in the first and second Book of his *Epidemics*, and by *Erasistratus*, in those Books he wrote concerning the Belly. The latter Kind, of which we are now to treat, is by them called the *proper Cardiac Passion*, and is accompanied with an Eruption of Sweat, and a weak Pulse. This Disorder, according to some, derived its Name from the Part affected; for they imagine, that the Heart is the principal Seat of the Disease: Others are of different Opinions with respect to this Particular; for the Vulgar have a Custom of bestowing pompous Names upon Things which are great or important in their respective Kinds: Thus they call the Sea, the great and sacred Ocean; and the Epilepsy, the *Lues Decifica*, by which Words, though hard to be translated, they, no doubt, meant a stubborn and Herculean Disease. Now, as the Heart is the most important Organ, and most immediate Source of Life, this Disease, as being of a formidable Nature, deriv'd its Name from that Part.

Soranus declin'd giving Definitions of Diseases. *Artimedorus Sidenfis*, a Follower of *Erasistratus*, asserted this Disorder to be *A Tumor about the Heart*. The Followers of *Aesclepiades*, also, define it, *a Tumor about the Heart, produc'd by a Coacervation or Obtrusion of Corpuscles*. But *Soranus*, whose Sentiments I profess to deliver, affirms, that there is no perceptible Sign of any Tumor in Patients afflicted with this Disorder. A great many do not think it probable, that in this Case the Heart is affected; and *Soranus* asserts, that the Cardiac Passion is *a quick and instantaneous Solution or Relaxation*, by which he suspects the Corpuscles, or Atoms, to be dispersed and driven thro' all the most remote and minute Passages of the Body. This Disease seizes more frequently in the Summer, than in any other Season of the Year: Men are more subject to it than Women. Young People of hot Constitutions, Men of full Habits of Body, and such as are accustomed to violent Exercises, are more frequently afflicted with this Disorder, than Persons of an opposite Character. But the antecedent Causes of this Disease are many and various: 'Tis, however, most commonly produc'd by Indigestion, drinking to Excess, bathing after Meals, and vomiting after Supper; or by Sadness or Terror, in which Case, the Body is, in consequence of its Consent and Connection with the Mind, dissolved into Sweats. In continued burning and inflammatory Fevers, this Disorder, also, frequently seizes the Patients on the fifth or sixth Day.

We may know those who are about to be seiz'd with the Cardiac Passion, and those who already labour under it, by the following Signs. Those who are just about to be seiz'd by it, have an acute, violent, and burning Fever, a quick, a dense, a low, and, as it were, a moist [*humidus*] Pulse, during the whole Time of the Accession, and sometimes till the very End of the Paroxysm; so that, tho' the Heat be in some measure abated, the Pulse is not proportionably elevated, but rather depressed, in Comparison of what it was before. The Pulse is, also, sometimes inordinate, but not quite deficient,

since it beats quick, confusedly, and without Order or Measure. The Patient has also a Loathing of Food, an immoderate Thirst, little Sleep, from which he is also easily awaked, a Readiness to commit Mistakes, Dulness, and a restless Tossing of the Body. During the Accession, or even till the End of the Paroxysm, the Knees, Elbows, and Legs, are cold and numb'd. These Symptoms sometimes appear as the Consequences of the Disease itself, even when the Strength of the Patient has not been previously impair'd. But it sometimes happens, that when the Strength is previously impair'd, by too liberal Discharges of Blood, violent Purging, or an immoderate Evacuation of any kind, and the Fever growing worse, a great Loss of Strength ensues. Some, also, in this Case, have Regard to the Heat of the Atmosphere, and observe, whether Diseases caus'd by it are not epidemical; whether he is of a *læteous* [*laetea*] Habit of Body, or whether he is weak, whitish, large, corpulent, and pale; and lastly, whether, in Time past, he has been subject to this Disorder: But, according to *Soranus*, these Signs are uncertain and precarious.

The Patient, actually labouring under the Cardiac Passion, is affected with a Coldness and Numbness of the Joints, sometimes in both Legs or Hands, and sometimes all over the Body. The Pulse is dense, quick, small, weak, empty, and, as it were, fleeting; as the Fit increases, the Pulse becomes sunk, obscure, tremulous, formicating, irregular, and deficient, attended with a Depravation and Despondency of Mind, perpetual Want of Sleep, and, in some, with a sudden and plentiful Eruption of Sweat all over the Body. Sometimes a small, thin, and aqueous Sweat breaks out first about the Neck and Face, which afterwards becomes, as we find, universal and copious; and then it becomes thick, glutinous, viscous, and of an ill Smell, like Washings of Flesh. Respiration is small, short, and very difficult; and, in the Progress of the Disorder, the Speech becomes slow and faltering. Add to these a Paleness of the Countenance, and a Hollowness of the Eyes, with an oppressive Weight on the Thorax, thro' Weakness and Faintings, at the Approach of the Accession. In some, tho' the Brain be affected, the Tongue is moist; others, where the Disorder is complicated with a small Tumor in the Viscera, have their Tongues parched with Drought, and are desirous of cooling Liquors: The Patient, when he faints, is affected with a Dimness of Sight, and a Lividness of the Joints, with an Incurvation of the Nails, which the *Greeks* call *γρυπσις* (*Grypsis*); many retain their Reason entire, in some it fails them, and there is a quick Pulsation of the Heart. After this, if the Lipothymy is violent, the Superficies of the Body becomes wrinkled, and, what is a common Symptom with dying Persons, there is an involuntary Discharge of the Fæces.

Tears flowing involuntarily, that is, without the Patient's having any Reason for it; or a sanious and purulent Lippitude in some Part of the Eye; or when there arises in the Black of the Eye a whitish Spot, of the Figure of a Man's Nail, or the Moon just appearing after the Change, which Spot gradually increases, and is called by the *Greeks* *ὄνυξ* (*Onyx*); these are fatal Symptoms. Also a continued Deglutition of the Food entire and unchew'd, with a sort of Noise, prognosticates Death, and the more infallibly, when the Things received into the Stomach remain unaltered and undigested for a long Time, and when the Belly is moved, and emits, as from a Bladder, that Sort of Sound which the *Greeks* call *βόμβος* (*Bombus*); for it is a Sign, that the Body is dead, when the Food is deposited in an inanimate and insensible Receptacle. It is a bad Sign, also, to nauseate all manner of Food, and to refuse any Sustenance, or to have no Appetite to Wine, or after Eating to feel an Oppression, or to be feverish, with a Return of the Fainting; also, if after some slight Refreshment the Fit soon returns, or the Patient throws up what he has taken, or is seiz'd with a Diarrhoea, or a Trembling of the Lips. It is an ill Prognostic to bite the Spoon, or the Brim of the Cup, in Eating or Drinking; for it is a Sign of a Defect of Spirits, as if they were exhausted, and not sufficient to expand the Mouth, but constrained to give Way to involuntary Bitings. It is a dangerous Case, when the Cardiac Passion is attended with a Delirium; because, in such a Circumstance, we can make no Use of Wine, or Choice of Diet, for the Refreshment and Support of the Patient. It is no less dangerous, when, after the Patient has received Sustenance, and been refreshed, the Fever returns upon him; for the Spirits are, in such a Case, dejected, the Strength exhausted by Sweat, the Body enervated, and the Tone of the Parts relaxed, attended with Dimness of Sight, Roughness and Dryness of the Tongue, an Attraction of the Præcordia upwards, and an Oppression from the Food. Thus, after a gradual Extenuation, and languishing for many Days, the Strength is at last quite exhausted, and the Patient sinks under the Distemper; for neither can the Strength be supported by a sparing or simple Diet, nor is the Stomach capable of digesting much or solid Food. Some, without Sweating, languish and pine away, and their natural Vigour is exhausted by a se-

cret Way, which the *Greeks* call ἀδύλος διαφύρεσις, “an insensible Diaphoresis,” when the whole Habit of the Body is relaxed, and in a State of Fluxion and Dissipation.

If the Disease be attended with favourable Symptoms, and the Patient begins to recover, the Pulse resumes its Vigour, the Coldness of the Parts is succeeded by a kindly Warmth, and the Difficulty of Respiration is lessened, which salutary Signs are accompany’d with a sort of Security of Mind; after Eating, the Patient feels his Strength recruited; and when he betakes himself to his Rest, he sleeps as soundly as a Man after Labour. *Caelius Aurelianus, Acut. Morb. Lib. 2. Cap. 32.*

It is disputed, whether the Cardiac Passion be attended with a Fever: Very many before *Aesclepiades* deny’d it; others, among whom was *Apollonphanes*, a Follower of *Erasistratus*, held the contrary. *Aesclepiades* asserts, that very many of those, who labour under this Disease, are free from a Fever; for in those Treatises which he wrote upon *Erasistratus*, and which he intitles *contradictory*, “I assert, he says, that Persons affected with the Cardiac Passion are under no Fever.” But, in his second Book of *acute Distempers*, he says, that those who are under this Disorder, are seldom afflicted with a Fever. *Themison, Thessalus*, and *Demetrius Aponicus* say, that some of them are feverish, others not. *Demetrius Aponicus*, in particular, asserts, that all are feverish in the Beginning and Increase of the Distemper; but, when the Fever begins to be violent, the Passion is said to remit.

They, then, who assert, that none under the Cardiac Passion are affected with a Fever, allege, that all Fevers are necessarily attended with great Heat, Heavings, and an Indisposition for Motion, together with a Dryness, a pungent Sensation in the Pores, Redness and a Distention of the Præcordia: None of these Symptoms, they say, affect a Person labouring under the Cardiac Passion, and consequently he cannot be said to have a Fever. Again, a Fever, according to *Aesclepiades*, is a violent Heat in all or most Parts of the Body, with a raising of the Pulse to a vehement Degree, because of an Obtrusion of Corpuscles (*Obtrusio*). But in Cardiac Patients, the Pulse is not fuller but smaller; nor stronger, but weaker; nor is the Heat excessive, but moderate in the interior Parts of the Body, and least in the middle Parts. For these Reasons, he constantly prescribes Clysters, where there is no Fever.

Some, who ascribe the Cause of Fevers to an Obstruction of the Pores or Passages, say, that a Dissipation, or Diaphoresis, is effected by a Rarefaction of all the Parts of the Body; and that a Fever happening from a Condensation of the Parts, the Heat is produced by a kind of Attrition.

Apollonphanes tells us, that it was the Opinion of *Erasistratus*, that all who labour’d under the Cardiac Passion were feverish; for this Disorder seemed to proceed from a Tumor of the Heart, and a great Stricture is the Cause of a Fever. Some late Writers say, that to be sick without a Fever, was a Sign, that the Distemper was not dangerous; but that malignant Diseases were caused by the Accession of a Fever, in which Case a Diaphoresis by Sweat was excited, which ceasing, the Reliques of the Fever still remained.

But *Soranus* will not admit of either of these Assertions; for to the first he answers, that a Sign is a different Thing from an Accident; for a Sign never recedes, but is inseparable from the Thing signify’d; but an Accident, which the *Greeks* call “a Symptom,” now presents itself, then recedes and disappears; of which Kind we take to be what they call the Accidents of feverish Persons, such as Difficulty of Motion, Heaviness and a Tension of the Præcordia; for some Patients, under a Fever, feel none of these Symptoms, if the Disease be owing to a Solution or Relaxation; but some Cardiac Patients are affected with a stimulating Heat, which seems to be seated in the interior Part, and is a Sign of a Fever.

Aesclepiades, in his second Book of acute or quick Diseases, says, that the Cardiac Passion is frequently, tho’ not always, excited by a Fever. But if he will have it, that Cardiac Patients are free from a Fever, because, in his Opinion, they have not the Signs of such a Disorder upon them; we answer, that his Error arises from his not perceiving the true Signs of a Fever. For in the Beginning of the Fit, the Joints are manifestly perceived to be cold, and the Pulse low and weak; and this may serve, also, as an Objection against those who take an Obstruction or Condensation of the Pores or Passages to be the Cause of a Fever.

Some will tell you, that the Cardiac Passion, attended with a Fever, is a Complication of Diseases; whence some of the Pores being expanded, and others obstructed, the Rarity of the first causes a Diaphoresis, and the Density of the rest, with an Attrition of Bodies, excites a Fever.

As for our Parts, we determine, according to the Judgment of *Soranus*, that a Fever is absolutely the Effect of a Solution, and a consequent Laxness, of the Pores, as he has taught us in his Treatise of Fevers. And to the Followers of *Erasistratus* we answer, that it is not true, that all Fevers are caused

by a Stricture, for some are the Effect of a Solution; but if they are not willing to allow this, they will, however, not deny, but the Cardiac Passion may be excited without a Tumor: For since the Patients have the free Use of their Reason, and are affected with no Sense of Pain, or any other Signs of a Stricture, it must be very erroneous to assert a Tumor or Stricture of the Heart; and that all Cardiac Patients labour under a Fever. Nor are dangerous Diseases rightly distinguished by the Characteristic of a concomitant Fever; for the *Cholera Morbus* is a severe and dangerous Distemper, but never attended with a Fever. It is true, that the Cardiac Passion is preceded by a Fever, which sometimes meets with a Solution by Sweat; as does also a Tumor, by being converted into a Collection of purulent Humour. That there are Reliques of a Fever remaining after the Sweating, is contrary to Experience; for very many are found who have no Fever.

We say then, as do all our Methodics, that some of those, who labour under the Cardiac Passion, are free from a Fever; for Example, those, in whom a Solution is caus’d by an Hæmorrhage: Others have a Fever accompanying that Disorder; for if you apply your Hand to the Hypochondria, and Parts adjacent, or upon any Part upon which the Patient has lain, you will perceive a hot and stimulating Vapour ascending from the interior Parts, which is itself a manifest Diagnostic of a Fever, and is, besides, attended with a hot and quick Respiration, and a Delight in cooling Drinks, and sometimes also with a Dryness and Roughness of the Tongue. *Caelius Aurelianus, Acut. Morb. Lib. 2. Cap. 33.*

The Part principally affected by the Cardiac Passion, according to *Erasistratus* and *Aesclepiades*, is the Heart. Some will have it to be the Membrane which surrounds the Heart (*the Pericardium*); others the Diaphragm, that is, the Membrane which separates the Intestines from the Viscera (*the Heart and Lungs*); some assert it to be the Lungs, others the Liver. They who say the Heart is the principal Sufferer, argue, first, from the Name which is given to this Disorder; it is called the Cardiac Passion, say they, because it proceeds originally from the Heart; for the *Greeks* call the Heart καρδιά (*Cardia*). A second Reason is, that the Palpitation which is felt under the Fit, seems to belong to the Heart, and the Weight, or Oppression, to be in the Left Part of the Thorax, near the Breast. Thirdly, the Greatness of the Disorder is a good Argument, they think, for their Opinion; since the Disease could never arrive to so violent and dangerous a Height, were not some principal Part of the Body primarily, and not by Consent of Parts, affected. Now the Heart is a noble and necessary Part of the human Body, as it distributes Blood and Spirits to all the rest.

But to the first of these Arguments some answer, that the Disease is denominated from its Greatness, not from the Part affected. In Answer to the second, they say, that the Palpitation or Pulsation of the Heart and Arteries are alike; and that some Cardiac Patients are sensible of an Oppression in the whole Region of the Thorax, and not only in the Left Part; or, if this latter were the Case, the Oppression might be owing to a Disorder of the Pleura, or some neighbouring Part, if Causes are to be ascribed to Places. As to the Greatness of the Disorder, which is the third Reason, they answer, that there are many dangerous Distempers, of which the Heart is not the Cause as the primary Sufferer; for it is not necessary, that under every great Disorder some principal [*proprium*] Part of the Body should be affected, since all Parts are principal and necessary with respect to the Integrity of the Body.

Others deny, that the Heart is primarily affected under this Disorder; because, by the Confession of those who assert this, as soon as a principal Part, and one that is necessary to Life, is affected, Death prevents all Sensation: as, for Instance, if it happens to be wounded, Death immediately anticipates all Effects of the Wound; nay, if it receives the slightest Hurt, it is necessarily deprived of Life, and not, like other Parts, withers, hardens, or becomes paralytic.

But to these it is reply’d, that a Wound of the Heart is suddenly mortal, because it cannot be inflicted, without a previous Penetration of many other Parts, and a very copious Effusion of Blood, and not from a Solution. That it neither withers, hardens, nor is affected with a Palsy, is no Argument, that it is not at all, but that it is slightly affected; for, if it be constituted of the same Nature with the other Parts of the Body, it must of Necessity be subject to the Influences of the same Causes.

As to our Opinion in this Case, since, agreeably to the Judgment of *Soranus*, it appears, that the whole Body labours under a Relaxation, it is necessary, we think, that every Part should be affected; but what particular Part is the greatest Sufferer, we do not care to dispute, lest we should be found to contend in the Dark: For neither the Diagnostics, nor Method of Cure, will receive any Alteration in this respect, since Remedies are to be provided suitable to all Parts of the Body.

There are others, in the last Place, who tells us, that the Cardiac Passion or Solution proceeds sometimes from the Heart, sometimes from the Pericardium; and that in the latter Case the Patient is affected with a Pain, and frequent pungent Sensations; but when the Cause is in the Heart, he is only sensible of a Weight or Oppression. But to these we answer, that their diagnostic Signs are but imaginary; for when the Parts near or contiguous to the Heart are affected, it is necessary that sometimes a pungent Sensation, sometimes an Oppression, should be the Consequence. *Cælius Aurelianus, Acut. Morb. Lib. 2. Cap. 34.*

Because many Persons labouring under a *Cardialgia* are affected with Sweating, a Coldness of the Joints, and a Lowness of the Pulse, with Fainting and Paleness, which are all Symptoms of the Cardiac Passion, I think we ought to shew the Difference between these two Diseases.

Asclepiades, in distinguishing them, says, that Cardiac Patients may be known from those who are affected with a *Cardialgia*, (*Stomachi Supinitas*) because the former have a very low and weak Pulse, but accompany'd with a great and vehement Beating of the Heart, together with an Oppression at the Thorax, and a Difficulty of Respiration; whereas, on the contrary, those who languish under a *Cardialgia*, have a strong Pulse of the Arteries, but their Heart beats weakly; to say nothing of other Accidents, which the *Greeks* call Symptoms.

We, for our Parts, have not perceived such a great Pulsation of the Heart in the Cardiac Passion; for the Heart itself is affected more in Supposition than Reality; yet some Patients, under that Disorder, are sensible of an Oppression at the Thorax, and a Difficulty of Respiration. Some, under a *Cardialgia*, are only sensible of a great Weakness; and all Cardiac Patients do not complain of a Difficulty of Respiration.

We conclude, therefore, that as the Stomach is affected sometimes with a Stricture, sometimes with a Solution or Relaxation, the former State is attended with a Heat and Pain in those Parts of the Thorax which are under the Ribs, or in the opposite Parts between the Scapulæ, and sometimes with the Sense of a Load or Oppression, after eating. In the latter Case, or when the Stomach is relaxed, there follows a Flux of the Saliva, with an aqueous Humidity, and Nausea, or Vomiting of liquid Substances, and sometimes of the Food, together with a Coldness of the Joints; but in the Beginning of the Fit the Patient is cold and hot by turns.

But now in the Cardiac Passion there is neither Pain, nor an Oppression after Meat, nor Vomiting; and, besides, the Coldness or Numbness of the Joints continues equally the same. Moreover the Sweat which proceeds from a Person affected with the Cardiac Passion is sometimes thick, and of an ill Smell, so as to resemble Sanies or Blood; but in *Cardialgias*, quite thin and watery: The Fainting also, in the *Cardialgia*, is more towards the Beginning of the Fit; in the Cardiac Passion, towards its Recess. If both Diseases concur at the same time, the Distinction between them is render'd the more difficult, but not their Cure, which is perform'd by the same Remedies.

The Cholera Morbus, Tetanus, Hysteric Passion, and Asthma, are all attended with much Sweating, and a cold Numbness, but are not destitute of proper Symptoms by which they may be distinguish'd: For the Cholera Morbus is accompany'd with Vomiting; the Tetanus with an Inclination of the Neck; in the Hysteric Passion there is a Tumor of the Matrix; and an Asthma must of Necessity be attended with a very considerable Stricture. But tho' there should be found none of the preceding Causes sufficient to excite the Cardiac Passion, yet since there is an actual and evident Solution, which is the Characteristic of that Disorder, we confidently pronounce it the Cardiac Passion, without thinking ourselves of Necessity obliged to discover the Causes of that Solution; for the Method of Cure is not to be alter'd according to the Difference of the antecedent Causes.

There is a Disorder also, which some call *Cardimona*, and the *Greeks* *καρδιωμυα* (*Cardiomya*). It is always attended with a Pain at the Mouth of the Stomach, which many ignorant Persons call a Pain of the Heart.

In general, then, to conclude, the Cardiac Passion is a Disease of Solution, and one of the acute and vehement Kind, though sometimes attended with some Symptoms of a Stricture, as a Tension or Tumor of the Middle Parts, (the Hypochondria, Illia, and Belly) which are not properly or necessarily incident to Cardiac Patients. *Cælius Aurelianus, Acut. Morb. Lib. 2. Cap. 35.*

Because those salutary Sweats which the *Greeks* distinguish by the Epithet *critical*, do, by reason of their Profuseness in the Crisis of violent and continued Fevers, bear a certain Resemblance to the Cardiac Passion, we therefore judg'd it necessary to ascertain the Difference and Distinction between them, since many unskillful Physicians, with an Intention to relieve those who labour'd under the Cardiac Passion, have, by repressing salutary and moderate Sweats, not only render'd the Constitutions of their Patients morbid, but even kill'd them. For this Reason 'tis absolutely necessary, that a Difference should

be establish'd between them; and this Difference may be collected from various Circumstances; as, first, from what has preceded; from the different Kinds of the Disorders; from the Profuseness, the Time, the Nature, the Quantity and Quality of the Sweat itself. From what has preceded, we find out the Difference, by considering whether any Symptom has prognosticated a salutary Diaphoresis, or such a preternatural Sweat as the Cardiac Passion produces. The Difference between these is also discovered, by adverting to the Kinds of the Disorders, which are found out by attending to their Qualities. If the Disorder proceeds from Solution, the Sweat must necessarily be of the prejudicial Kind, and such as Cardiac Patients are afflicted with. But if the Disorder proceeds from Stricture, the Greatness of the Disorder is to be adverted to: For in a small Disorder a Diaphoresis is not necessary; but if the Disorder is great, Nature's Time for the Eruption of the Sweat is to be waited for. In the Height of the whole Disorder, and of the particular Paroxysm, or during the manifest Remission, the Sweat is for the most part critical and salutary; but in the Beginning and Increase of the Disorder, it is hurtful and pernicious. This Difference may also be determined from the Nature of the Sweat itself: That which is equal, is esteem'd good; whereas that which is unequal, is accounted bad. We may also draw a Diagnostic from the Quantity of the Sweat; for when it is moderate, it is a good Symptom; but when immoderate, the reverse. Those who have sweated to Excess have sometimes fallen into the Cardiac Passion. We may also draw Diagnostics from the Quality of the Sweat, which is to be judg'd of by the Touch. A salutary Sweat is warm, thin, and not ill-smell'd; whereas a Sweat of the prejudicial Kind is cold, viscid, ill-smell'd, and, in Appearance, resembling the Washings of Flesh. Our Judgment is also to be form'd upon the present and concomitant Symptoms; for Cardiac Patients have a Pulse more small, frequent, weak, and languid. Their Thorax is also oppressed, and their Respiration frequent; they are uneasy and restless, dejected, have a small Voice, and become pale; whereas those who sweat in a salutary manner, have a brisker Pulse, a freer and easier Respiration, a cheerful Propensity to Sleep, a Diminution of all unfavourable Symptoms, and a Refreshment both of Body and Mind. *Cælius Aurelianus, Acut. Lib. 2. Cap. 36.*

CARDIACA, in Pharmacy call'd also *Gordialia*, *Analeptica*, *Confortantia*, *Confortativa*, *Rescéliva*, *Resumptiva*, Cardiacs, are properly such Medicines as preserve or increase the Strength of the Heart, and by that means the vital Forces, tho' they do not immediately work upon the Heart, nor are particularly appropriated to the Corroboration of that Part. This Effect they perform either by replenishing the exhausted Vessels with good Humours, or exciting Motion where it was required. Therefore Nutritives, or Repletives, duly chosen, with respect to particular Constitutions, belong to this Class, as well as astringent Corroboratives and Stimulants, which are usually accounted the only Cardiacs. In this Sense we are to understand the Definition given by *Harvey* of a Cardiac, which, he says, is something that is endu'd with the Virtue of speedily recollecting the scatter'd and broken Spirits, and recruiting them with plentiful Supplies, or of corroborating the flaccid Fibres of the Heart.

Hence it appears, that Cardiacs are principally deslin'd to the Removal of some Weakness; and that any thing may be called a Cardiac, which removes the Obstacles to Circulation. Wherefore *Valerengus* was very just in his Notion, when he says, that "A Cardiac is whatever destroys, or at least blunts the Force of, the morbid Cause, restores the lost Tone of the Solids, and gives due Motion to the Fluids; and by that means procures a just Equilibrium, which is the only and lasting Principle of all the Motions in our Body." "Generally what promotes Motion, says *Rega*, in his *Methodus Medendi*, is also a Cause of the Heart's acquiring a greater Strength for Action."

But since Weakness does not only arise from a Defect of good Humours, and a flaccid Indisposition of the Vessels, but oftentimes from a Redundance of Humours, a thick and stagnating Blood, with an Obstruction of the Vessels from too great a Rigidity, Contraction, or Compression, it follows, that what we commonly call debilitating, refrigerating, relaxing, resolvent and evacuating Medicines, belong to the Class of Cardiacs, inasmuch as they remove a present Weakness of the Body, by acting immediately and directly in Opposition to the Cause of that Weakness. *Tralles, de Remediis terreis, Cap. 12.* *Riverius* justly observes, that as the Heart may be debilitated sometimes by a hot, and sometimes by a cold, Intemperature, some Cardiac Medicines must of course be of a hot, and others of a cold Nature. *Lindeholtze*, in his *Treatise de Venenis*, uses these Words: "The Vulgar indeed are of Opinion, that there are some Medicines which immediately corroborate and exhilarate the Heart. But I have as yet found out none of this Kind; for all Substances which corroborate the Heart, or occasion its strong and frequent Contraction, are the most virulent Poisons, and of a Quality most unfriendly to the Constitution;

“stitution; of this Kind are all acrid; metallic, acid, and
 “alkaline Poisons, and the putrefactive Poisons of Animals;
 “for by large Doses of these Substances the Motion of the
 “Heart is increased; and the Ruin of the Constitution pro-
 “moted at the same time. And as Diseases arise from different
 “Causes, so whatever Medicine is contrary to a Disease, may
 “be said to be possess’d of a cardiac or cordial Quality; not
 “because it corroborates the Heart, but because it proves
 “grateful and agreeable to the whole Habit. Thus in putrid
 “Fever, and such as arise from a predominant *Alkali*, all
 “acid, metallic, and vegetable Substances are Cordials; on
 “the contrary, in Disorders arising from a predominant Acid,
 “we are to have recourse to alkaline Substances, as the most
 “proper Cordials. In Diseases produc’d by Rage and Wrath,
 “we must injoin Calmness and Composure of Temper; in
 “Grief and Sorrow, Joy and Cheerfulness; and in every Dis-
 “ease, what seems most directly opposite to it.” Volatile and
 “dissolvent Cardiacs, which stimulate the Fibres, raise the droop-
 “ing Spirits, and overheat the Body, universally and indiscrimi-
 “nately exhibited to Patients of all Constitutions, are by no
 “means to be approved of. ’Tis, however, become almost uni-
 “versally customary, to use inflammable Spirits, and balsamic
 “and aromatic Medicines, in order to raise the Spirits when sunk,
 “and render’d languid, by whatever Cause. It must, indeed,
 “be confess’d, that such Substances rouse the Spirits, and procure
 “a momentary Ease to the Patient; but when unseasonably or
 “excessively used, they excite too violent Commotions in the
 “Juices, and dissipate those which are most fluid; by which
 “means those which are too thick, and unfit for Circulation, are
 “left behind in the Body. Hence arise Dryness and Rigidity of
 “the solid Parts, and a Weakness arising from Obstructions;
 “and if, in Cases of this Nature, the Use of such cordial Medi-
 “cines is repeated or persisted in, the now mentioned Disorders
 “are augmented and increased. In a Word, the Man who
 “foolishly seeks to restore his Strength, or raise his Spirits, by
 “this Method, has the Fate of him who, by blowing his Fire,
 “renders it, indeed, brisker, but, at the same time, less durable,
 “than it would otherwise have been. *Paulus Valerius*, in his
 “*Medicina Rationalis*, endeavours to shew, that what proves a
 “Cordial to one Patient, may prove a Poison to another. The
 “Origin and fatal Consequences of this wretched Custom are,
 “by *Dr. Cheyne*, in his Essay of Health and long Life, excel-
 “lently described in the following manner, when speaking of the
 “idle Habit contracted by some Ladies of drinking Cordials.
 “A Fit of the Colic, or of the Vapours, a Family Misfortune,
 “a casual Disappointment, the Death of a Child, or of a
 “Friend, with the Assistance of the Nurse, the Midwife, and
 “the next Neighbour, often give Rise, and become the weighty
 “Causes of so fatal an Effect. A little Lowness requires
 “Drops, which pass readily down, under the Notion of Phy-
 “sic; Drops beget Drams, and Drams beget more Drams,
 “till they come to be without Weight, and without Measure;
 “so that at last the miserable Creature suffers a true Martyr-
 “dom, between its natural Modesty, the great Necessity of
 “concealing its Cravings, and the still greater one of getting
 “them satisfied some-how. Higher and more severe Fits of
 “Hysterics, Tremors, and Convulsions, begot by these,
 “bring forth farther Necessity, upon Necessity, of Drops,
 “Drams, and Gills, till at last a kind of Dropsy, nervous
 “Convulsions, a nervous Atrophy, or a colliquative Diar-
 “rhœa, if not a Fever or a Frenzy, set the poor Soul free.”

Give me Leave to remark, that *Dr. Cheyne* might have
 added as one frequent Cause of the horrid Custom of drinking
 Drams, to these above-mentioned; I mean the habitual Usage
 of very warm diluting Fluids, such as Tea, which, in conse-
 quence of their Heat, relax the digestive Organs; whence Fla-
 tulencies, Lowness of Spirits, and a Necessity for Drops, or
 something else, in order to raise the sinking Spirits.

There are, however, some Cases, in which Cardiac Medi-
 cines of this Kind may properly be exhibited. In Palpitations
 of the Heart, for Instance, and Syncopes, when these Disor-
 ders arise from a cold and aqueous, or an inert and mucous
 State of the Juices; in which Cases the distil’d cohobated Wa-
 ters, and the distil’d essential Oils of Baum and Lemon-peel,
 are principally proper. See *AQUA*.

Etzmüller informs us, that the Cephalico-cardiac Medicine,
 communicated by *Elizabeth Queen of England* to the Emperor
Rudolphus the Second, consisted of Amber, Musk, and Civet,
 dissolv’d in Spirit of Roses. According to the celebrated *Hoff-
 man*, in his *Medicina Rationalis*, “We are not to imagine,
 “that a true and permanent Restoration of Strength is to be
 “procured by such Medicines as communicate Motion to the
 “Spirits, and solid Parts; since, in various Disorders, espe-
 “cially Fevers and Convulsions, the moving Force of the
 “Heart, Arteries, and Membranes, is sufficiently great, and
 “yet the natural Strength is languid and impair’d; so that the
 “true and genuine Perfection of the natural Strength, for the
 “most part, depends upon proper Aliments and Liquors con-
 “verted into laudable Juices and Blood, of which is afterwards
 “generated that highly subtle Fluid, which is separated in the

“Brain, convey’d thro’ the Nerves to the Muscles and muf-
 “cular Coats, and which imparts Strength and Vigour to the
 “Body, and all its Parts. The best Analeptics are, therefore,
 “those nutritive Substances which are possess’d of the most
 “salutary Qualities; of this Kind are Jelly, Broths of Fleshes,
 “Capons, Bones, and their Marrow, prepared by boiling in
 “Water in a close Vessel, with an Addition of a little Wine,
 “a few Slices of Lemon, a little Salt, Powder of Mace and
 “Cloves; of this Kind is also the Broth prepared of black
 “*Westphalian* Bread, (see *BOMPOURNICKEL*) Water, Wine,
 “and Eggs. To this Class also belongs Chocolate, with or
 “without Milk; Asses Milk, Water distil’d from coarse
 “Bread, and Lemon-peel; Wine, especially old generous
 “*Rhenish* Wine, and genuine *Hungarian* Wine. But these
 “nutritive and alimentary Medicines are most proper for
 “recruiting and restoring the Strength not immediately under
 “the Disease itself, nor when the whole Mass of Blood and
 “Humours is highly impure; but in the Decline of Diseases,
 “and in Cases where the Strength has been exhausted and im-
 “pair’d by the Shocks of a previous Disorder, the Sallies of
 “exorbitant Passions, excessive Watchings, Labour and Fa-
 “tigue of Body and Mind, or profuse Hæmorrhages; and
 “even in these Cases a cautious and prudent Moderation is to
 “be used, because these Substances very quickly pass into the
 “Mass of Blood, and augment its Quantity.” With respect
 “to the Use of Cordials in hot Disorders, such as continued
 “Fevers, the incomparable *Sydenham* delivers his Sentiments in
 “the following Words: “Cordials, as I have experienced, when
 “given too soon, do Mischief; and, unless Bleeding has pre-
 “ceded, may derive the crude Matter of the Distemper upon
 “the Membranes of the Brain, or upon the Pleura: For this
 “Reason I never exhibit them, when either no Blood, or very
 “little, has been previously taken away, or when no other con-
 “siderable Evacuation has been made, or the Patient has not
 “pass’d the Meridian of Life; for whilst the Blood remains
 “rich enough of itself, it should not be rendered richer, to the
 “endangering the Patient; nor does it require to be raised and
 “exalted, so long as no remarkable Evacuations have diminish’d
 “its natural Heat. Patients of this kind have Cordials stored up
 “within themselves, which render external and adventitious ones
 “either superfluous or prejudicial. In Cases of this Nature,
 “therefore, I either prescribe no Cordials at all, or those of
 “the weakest Kind. But if the Patient should be greatly
 “weaken’d and dispirited by copious Evacuations, or if he
 “should be in the Decline of Life, I generally admit of Cor-
 “dials even in the Beginning of the Fever; and on the twelfth
 “Day of the Disorder, when the Crisis is just approaching, I
 “think a freer Use of the hotter Remedies allowable; and
 “they may be exhibited sooner, provided there is no Danger of
 “the febrile Matter falling upon the principal Parts; for, at
 “this Time, the more the Blood is heated, the more the
 “Business of Concoction is promoted.” And a little after he
 “subjoins, “In this Distemper I use the milder Cordials at the
 “Beginning, when the Exertation is most violent, and gra-
 “dually proceed to the hotter, according as the Fever, or the
 “Degrees of Ebullition, require, always remembering, where
 “Venesection has been freely used, or when the Patient is ad-
 “vanced in Years, to administer those of a stronger Kind, than
 “when no Blood has been previously taken away, or when the
 “Patient is in the Vigour of Life. The milder Cordials are
 “such as are made of the distil’d Waters of Borage, Lemons,
 “Strawberries, and the compound Scordium-water, with a
 “Mixture of the Syrup of Baum, Cloves, or Juice of Le-
 “mons. But the stronger are *Gascoign’s* Powder, Bezoar,
 “Confection of Hyacinth, Venice-treacle, and others of a
 “like Nature.” See *ANALEPTICA*.

All the modern Dispensatories are so full of Cardiacs, or
 Cordials, both of the dry and liquid Kind, that these alone
 would take up a Volume, was I to specify them all, and that
 to very little Purpose, because they are generally very insigni-
 ficant and trifling Medicines. The best Cardiacs are those Re-
 medies which remove the Disorder of which Lowness of Spirits
 is the Consequence; and, next to these, is Wine, which, ex-
 hibited in proper Quantities, and more or less diluted as Cir-
 cumstances require, will generally answer better Purposes than
 more pompous Cordials, whilst it is less capable of doing Mis-
 chief.

I shall conclude this Article with the Opinions of *Harvey*
 and *Palliseri*, with respect to the Cardiac Powders of the Shops.
 The first of these asserts, That there is more of a real cordial
 Quality in a Spoonful of good Broth, or a few Drops of Brandy,
 than in a whole Ounce of those officinal Powders, distinguish’d
 by the pompous Epithet of *Cordial*. *Palliseri*, in his *Opera
 Physico-medice*, T. 3. informs us, that those are mistaken, who
 imagine that earthy Substances, such as *Armenian Bole*, seal’d
 Earth, Samian Earth, Pearls, and Bezoars, are in malignant
 and pestilential Fevers properly exhibited, with an Intention to
 resist that Putrefaction which is generated by an Excess of Heat
 and Moisture, since this Putrefaction arises purely from Ob-
 structions, and must be great in proportion to them; and since

by earthy, cold, and dry Substances, Obstructions, and consequently the Putrefaction arising from them, are augmented.

CARDIALGIA, καρδιαλγία, from καρδία, the Heart; or rather the Left Orifice of the Stomach, and αλγία, to be pained, the Pain of the Mouth of the Stomach, or Heart-burn. The Antients call'd the Mouth of the Stomach καρδία, as Galen observes in many Places, particularly *Lib. 2. de Placitis Hippoc. Es-Plat.* ἡ μὲν ἐστὶν ἡ καρδιαλγία τοῦ στήθους, &c. "This Word Cardialgia," he says, "does not signify the Pain of the Heart contained within the Thorax; but there lies an Equivocation in the Term, as is well-known to those who are versed in the Writings of the Antients, who call'd that Principal of the Viscera which is included within the Thorax, and the Mouth of the Stomach, by the common Name of Heart." This he goes on to prove by Quotations from Nicander, Thucydides, and Hippocrates. Thus he expounds καρδίας πόνον, "the Pain of the Heart," Hippoc. *Proorbi.* by στόμαδος ἢ γαστρὸς πόνον, "the Pain of the Mouth of the Stomach." Again, *Comment. 3. in Lib. 1. Epid.* he explains καρδιαλγίαν, "to be pained at the Heart," by τὸ στόμα ἢ κοιλίας ἰδρυμέναι, "to have a Pain at the Mouth of the Stomach." Thus again, *Comment. 3. in Progn. γινόμενης δ' ἐνὶ στήθετι καὶ τὸν πνεύμονα τόπαν ἀναθυμειδίζουσαι αὐτῆς*, &c. "Such an Exhalation, which proceeds from the Lungs, is distinguished from what proceeds from the Stomach; which is the Cardialgia; for the Lungs have little or no Sensation of such Humours; but the Mouth of the Stomach, which we know is also call'd καρδία, by reason of the Multitude, and quick Sensation, of its Nerves, cannot but be sensible of every thing which is in it. Thus when, under a biting Sensation from bitter Bile, there is excited that Disorder which is call'd *Cardiognus*, and is attended with bilious Vomiting. Of this Thucydides also takes notice, where he says, That when it (the malignant Humour) settled at the Mouth of the Stomach (καρδία), it subverted that Part; and what the Physicians call'd bilious Purgations molested the Patients." The Place in Thucydides, quoted by Galen, is in his second Book, where he describes the Plague; where the Scholiast also observes, that the Mouth of the Stomach was called by the Antients καρδία (*Cardia*). See **CARDIOGNUS**.

The *Cardialgia* is none of the least Evils incident to Mankind, but of the Nature of those Disorders which affect the Mind as well as the Body; nor is it a Pain of the Heart, as it is commonly reckoned, but of the Stomach, which is a very nervous Part, and of exquisite Sensation, and principally affects its Orifices, being seated near the Pit of the Stomach, and very pungent, attended with great Anxiety, Difficulty of Breathing, Loss of Strength, Restlessness, Strainings to vomit, Trembling and Coldness of the extreme Parts, and a slight Lipothymy, and owing its Original to a Convulsion or Inflation, and frequently communicating its ill Effects, by Consent of Parts, to the whole nervous System.

Every Pain of the Stomach is not to be termed a *Cardialgia*, such, for Instance, as is attended with a Pressure and Anxiety, proceeding from the Quantity and long Detention of crude Aliment in the Stomach, because in this there is not that acute Sensation, nor are the Orifices of the Stomach much pained, nor are there that Tossing and Restlessness, and Loss of Strength, which are almost the proper and formal Diagnostics of this Disease, unless any one has a mind to call the fore-mentioned Disorder a spurious *Cardialgia*. The Pain is more intense or remiss, and attended with milder or more severe Symptoms, in proportion to the Greatness of the Cause.

The Seat of this acute Pain, according to the common Opinion of antient and later Physicians, is only in the Left Orifice of the Stomach, which Hippocrates and Galen of old called *Cardia*, whence the Name *Cardialgia*; but we believe it to be rather seated in the Right Orifice called *Pylorus*, and that the whole Stomach is affected on account of its extremely sensible nerveo-fibrous Coat; and this appears to be true, as we imagine, because this severe Pain always begins and fixes about the Pit of the Stomach, under the Cartilago ensiformis, towards the Right Side, where is the constant Seat of the Pylorus; and thence extends itself to the Left Orifice, which is situated in the Back, near the Spine, and penetrates the Diaphragm near the eleventh or twelfth Vertebra of the Thorax: For, in Dissections of those who have died of the *Cardialgia*, the Right Orifice has been found more affected than the Left, insomuch that Ulcers, Abscesses, Tumors, and sphacelous Corruptions, have been observed in the Pylorus, which have affected also the Duodenum, and the very Bottom of the Stomach itself.

But as a painful and uneasy Sensation cannot be excited in the sensitive Part of the human Frame, unless the nervous and fibrous Parts, from a violent Cause, are either affected with a vehement Distention, which threatens a Solution of Continuity, or with a strong and convulsive Constriction, we may hence observe, that a *Cardialgia* is either flatulent, or spasmodic. In the first of these Disorders the whole Stomach is violently

distended, by Flatulences included within its Cavity; in the other, it is corrugated, and contracted into a narrower Space. It is of no small Importance to know the proper Signs and Diagnostics which distinguish between the flatulent and spasmodic *Cardialgia*. The first is attended with a greater Difficulty and Straightness of Respiration, because the Stomach, being inflated, intercepts the free Descent of the Diaphragm, which is absolutely necessary to an easy Inspiration. Besides, a Tumor manifest enough to Sense, and like an Egg, is frequently observ'd in the Pit of the Stomach, inclining to the Right Side, while the Pylorus is continually elevated by the inflated Stomach. There are also frequent Eructations, which, while they are discharging, seem a little to alleviate the Pain; moreover, after Food, especially of a flatulent kind, the Pain is usually exasperated; but when the whole Substance of the Stomach is affected with a pretty obstinate Spasm, there is a greater Anxiety about the Præcordia, a greater Loss of Strength, Uneasiness, and Coldness of the extreme Parts.

If the Cause be a Humour of a venomous Nature, the Symptoms are highly exasperated, and threaten much Danger. Hence the Head is affected with Pain, Vertigo, Dimness of Sight; want of Sleep, and sometimes a Delirium and Convulsions, come on; an Oppression of the Breast, a Trembling of the Heart, and Syncope, a small weak Pulse, sometimes hard, unequal, and intermitting, attend; the Region of the Abdomen is molested with Gripes, Constipation of the Belly, and Suppression of Urine; the external Parts labour under Refrigerations, Tremblings, Shiverings, cold Sweat; the Face is livid and contracted, and the Patient has a yellowish and unpleasant Aspect.

That so formidable a Train of Symptoms affecting the whole Body should owe their Original to a disordered Stomach, cannot seem strange to one versed in Anatomy, who knows, that the Eighth Pair of Nerves, which furnishes the principal internal and nervous Parts with its Divisions, communicating to them Vigor, Strength, Sense, and Motion, sends off two very considerable and remarkable Branches near the Left Orifice of the Stomach, of which the internal passes, in form of a small Arch, to the Pylorus, and the external goes to the Bottom of the Stomach. And hence we may very well account for that Consent which subsists between this noble Part, the Stomach, and the System of the Nerves; for there is no other Part in the whole Body, which maintains the like Consent and Communication with the more noble Parts, as does the Stomach. A clear Proof of this, besides others which may be alleged, are the Observations which are found in the Writings of those Physicians who have left us Cases relating to judiciary Medicine, (*Medicine considered as it is concerned in determining judiciary Proceedings; as, for Instance to the present Purpose, whether a Man received his Death by a Blow on the Stomach, in which Case the Opinion of the Physician or Surgeon is required*) by which it appears, that a violent Blow with the Hand; or any hard Weapon, about the Pit of the Stomach, has excited the most terrible Symptoms, as immediate Chilness, and Falling to the Ground, Epilepsy, and sudden Death itself.

As there are two Kinds of *Cardialgias*, as well as Colic, which are, the flatulent or windy *Cardialgia*, proceeding from Flatulencies violently distending the whole Cavity of the Stomach, and the spasmodic convulsive *Cardialgia*, we are next to inquire by what means these Flatulencies, which at other times have a free Passage thro' the open Orifices, happen to be firmly included and detained within the Cavity of the Stomach. The Reason of this Phenomenon has scarce been touched upon by Physicians; but we shall not scruple to assert, that all such violent Inflations of the Stomach are effected by a Convulsion, which, however, does not affect the whole nerveo-membranous Substance of the Stomach, but only its Orifices, as they are Parts endu'd with a quicker Sensation: These Orifices, then, being strongly compress'd and closed, no Wonder if Vapours, which are principally generated from a Mass of crude and indigested Aliment, being excited by Heat, and finding no Vent, should, by violently distending and stretching the whole Cavity of the Stomach after a surprising manner, be the Cause of most dismal Pains, attended with the highest Anxiety, and Difficulty of Respiration.

Hypochondriacal Persons, whose Stomachs abound with acid and bilious Humours, are principally subject to this flatulent *Cardialgia*: Hence is the Patient, some Hours after Eating, molested with strong Tensions about the Præcordia, Inflation, and severe Pains, with a Difficulty of Respiration, which Symptoms, by a Discharge generally of acid Eructations, are afterwards, in some measure, abated; or, by pituitous acid Vomiting, are considerably alleviated: and at length the Disorder, by the gradual Returning of the Heat to the Stomach, and extreme Parts, which were shivering with Cold, entirely ceases. We have frequently observed this Disease in those who, after a pretty long Indisposition, have contracted a great Infirmary of Stomach, when they have eaten a little too greedily, especially of improper Food, such as what is fat, acid,

and disposed to Fermentation, or of Summer-fruits. In such Cases the Disorder has been excited, and made frequent Returns upon the Patient at Intervals, attended with Refrigeration of the Body, and especially of the Feet, or Region of the Loins.

We have observed also such an Inflation of the Stomach, attended with a Pain and Difficulty of Respiration, in sucking Infants, proceeding from Milk coagulated in the Stomach, and there stagnating, and turning acid; whence the whole Region of the Præcordia, under the spurious Ribs, has been distended and turgid with Flatulencies, in a surprising manner, which was perceivable both to Sight and Touch. We remember also, on this Occasion; an Example of a young Man, who, from an immoderate Eating of new and soft Cheese, and drinking upon it *Rhenish* Wine, not strong, but sourish, was seiz'd with a severe Fit of the flatulent *Cardialgia*, (which was mistaken by a Physician for the Colic) seated in a much inferior Place, and not attended with so great a Difficulty of Respiration. And here we are oblig'd to take some Notice of the Difference between the Colic seated in that Part of the Colon which lies immediately under the Stomach, and the Stomachic Colic, if we may so call it, because we have more than once observ'd Physicians mistaken in this Affair. Besides, therefore, the Circumstances of the pained Places, the antecedent Causes, and the Symptoms peculiar to the *Cardialgia*, let the prudent Physician always carefully observe the Success of the Remedies in these Cases; for I have known the Pain of the Colic, seated under the Stomach, removed by only one discutient Clyster.

Though generally the common Cause of both the flatulent and tense Pain of the Stomach be a vitiated Humour, which, being too long detained within the Cavity of the Duodenum, excites Flatulencies affecting the Orifices of the Stomach with a spasmodic Constriction; yet we have known Instances of the flatulent Disorder, where we could discover no vitiated Matter either in the Cavity of the Stomach, or of the Duodenum. And we have been enabled to pass this Judgment by considering, that such anxious and flatulent *Cardialgias* very frequently molest the younger sort of Women, on a Stoppage of the Menstrues, and even in the first Months of their Pregnancy, and manifest themselves by Eructations, and a Pain about the Pit of the Stomach and the Back, which return exactly about the usual Period of the Menstrues. We have observed something of the like Disorder in Men who have laboured under a Suppression of the Hæmorrhoids.

Though it be not so easy to discover the Cause of this Disorder, yet, when we consider, that a Stagnation of Blood within the Vessels of the Membranes of the Colon, or Intestinum Rectum, excites spasmodic Pains in those Parts, we judge, by Parity of Reason, the Cause to be no other than that the Blood is thrown upon the Regions of the Stomach and Præcordia, and by overcharging the Vessels of the Stomach excites those convulsive Strictures which affect that Part, and especially its Orifices. And we are confirmed in our Opinion, when we consider, that it is found, by frequent Observations, that those who have laboured under a spasmodic, flatulent, stomachic Asthma, which is often mortal, and generally follow'd by a Dropsy, have, after their Death, been discovered to have their Viscera, especially the Liver, stuffed and obstructed with Blood, and even polypous Concretions have been found in the Ventricles of the Heart, which, by putting a Stop to the free Circulation of the Blood, might easily divert its Impetus upon the Præcordia, which might occasion the Pain and Anxiety, which are always attended with Eructations.

But because there is a very severe *Cardialgia*, or Pain of the Stomach, attended with Anxiety, but with no, or at least no remarkable Inflation, which affects not only its Orifices, but whole Substance, on account of its nervous Coat, with violent Convulsions, we shall inquire a little more exactly into the Causes of such a Disorder. We scarce meet with any thing more frequent in Practice, than for a Person, after a vehement Fit of Anger, to be seized with a compressory and constrictive Pain about the Præcordia, and the Pit of the Stomach, which lies more towards the Right, and is attended with Anxiety and Streightness of the Breast, a Nausea, and Loathing of Food, and a Bitterness in the Mouth. Now it will not be difficult to discover the Cause of this Disease, if we consider, that such is the Nature and Force of Anger, when kindled to a vehement Degree, as to exert its pernicious Effects principally on the Præcordia; under which Term, as *Fernelius*, de Febr. l. 4. very well explains it, are comprehended the Region about the Stomach, the Diaphragm, the Cavity of the Liver, and biliary Ducts included therein, the Pancreas, the Stomach in particular, and its upper Orifice, with whatever is contained under the Insertions of the spurious Ribs, towards the fore Parts and the Sternum; all which, by the Violence of this furious Passion, are subject to be affected with spasmodic Constrictions. Besides, it is certain, that, by Anger, the bilious Juice is put in a great Commotion, and the biliary Canals, contracting themselves to a more intense Degree, discharge a greater Quantity of Bile into the Duodenum, where, by too long Continuance, it is

corrupted, and contracts a corrosive Quality, being the sole Occasion of Diarrhoeas, Cholera Morbus, Vomiting, and Cardialgic Pains, because it irritates the Pylorus, and the Bottom of the Stomach, by its Acrimony. The *Cardialgia* is also frequently caused by a Fright; and *Platerus*, *Observat.* 2. shews by an Instance, that Sorrow, by insensibly corrupting the Humours, disposes to long and severe *Cardialgias*.

The convulsive Affection of the Stomach is frequently symptomatical. We have often met with Instances where a Stone, sticking in the Beginning, or, what is worse, in the Middle of the Ureters, has, besides other troublesome Symptoms, excited a violent *Cardialgia*, attended with an intolerable Anxiety. We have observed the like Effects from bilious Stones passing through, or lodging in, the Cystic Duct, or Ductus Cholodochus. Hence it clearly appears, that a Part of our Body, endu'd with Sensation, may suffer merely from a disorderly Motion, by Consent of Parts, without any material Cause existing in it.

But the most severe and dangerous sort of *Cardialgia* is what is excited by taking Poisons of a burning and caustic Nature. That common and mischievous Drug, which has been the Bane of Multitudes, Arsenic, and others like it, are mortal on no other Account, than that, by their subtle and penetrating venomous Spicula, they insinuate themselves into the innermost Parts of the nervous Fibres of the Stomach, and, by cutting and corroding them, excite those dreadful convulsive Strictures in those Parts, which, being afterwards, by Consent, communicated to the whole System of the Nerves, are not only the Cause of those Symptoms which are essential to the *Cardialgia*, but of others more formidable and fatal, as a sphacelous Inflammation, Delirium, and Convulsions.

Emetics prepared of Regulus of Antimony, if given in too large a Dose, are the Cause of Cardialgic Symptoms; and if there be other internal Causes concurring, as when the Præcordia are already affected with spasmodical Strictures, they kill in the Operation after the same manner as Poisons: Of this there are but too many Examples. The same is to be understood of the stronger and more acrimonious sort of Cathartics, which act by a subtle, caustic, and vesicating Principle, and, being imprudently used, destroy Multitudes.

The Virulence of the pestilential Contagion is known to exercise its Malignity, first, by exciting Spasms and Inflammations in the Stomach, with severe *Cardialgias*, and oftentimes a Syncope. A *Cardialgia*, succeeding a Fever with petechial or purple Spots, is accounted a deadly Sign. It is also a very bad Symptom when a *Cardialgia* follows the Gout, as it frequently happens, the peccant Matter turning inwards upon the more noble Parts; or when it succeeds, as is usual, foul Exulcerations of the Skin, and the external Parts. For when the offending Matter, of an active and caustic Nature, being separated from the Humours, was propel'd to the Superficies of the Skin, and afterwards retires inwardly, and deeply insinuates itself into the nervous Coats of the Stomach and Intestines; whether these Coats be of a tender or firm Contexture, it acts after the manner of Poison, and, if not soon expel'd, by inducing Cardialgic Anxieties, throws the Patient into a Lipothymy, which is often succeeded by Death itself.

Epidemic and malignant Dysenteries, if imprudently suppress'd, are follow'd by a *Cardialgia*, which prognosticates a bad Event; for the acrimonious and caustic Matter being, by a retrograde Motion and Impetus, transfer'd from the inferior Parts of the Intestines to the superior, and the Stomach, greatly infests these noble Parts, and sometimes induces fatal Symptoms.

There is also a dangerous *Cardialgia* that owes its Original to Worms, which, as *Trallian* well observes, ascend from the lower Parts to the Stomach, and firmly adhere to its Orifices. Of this we have a remarkable Example, recorded by *Hercules Saxonia*, *Prælect. Prac. Part 2. Cap. 7.* "Three Years ago," says he, "I was call'd to a Boy eleven Years of Age, who was full of Worms. I gave him some Pills, but, when I returned the next Day, he was dead. I took care to have his Stomach opened, where I found three-and-thirty live Worms, about nine Inches in Length, which adhered so tenaciously to the Mouth of the Stomach, that they could scarce be pull'd away." More Instances to this Purpose may be found in *Henricus ab Hier*, *Lancisi de Mort. subit.* and *Riverius*, *Lib. 9. Cap. 10.* It is very probable, that the Cause of such a sudden Death was no other than an invincible Syncope, proceeding from a strong Constriction of the Heart, or rather its adjacent Vessels. Hence we understand the Excellency and Importance of that noble Part the Stomach, for the Preservation of Life; which *Helmont* thought so considerable, that for this Reason he plac'd the Seat of the sensitive Soul in that Part.

There are other, and those occult, Causes of those dismal convulsive Disorders of the Stomach: For where there is a continual Pain for many Months together, by which the Flesh is consumed, and the Strength quite exhausted, we may rightly conclude, that there is a latent Defect and Disorder in the solid Parts; and this is confirm'd by Dissections. Thus *Riverius*, *Cent. 1.*

Obj. go. in such a chronical Disorder found a Scirrhus, which surrounded the whole Pancreas, with the Beginning of the Pylorus and Duodenum. And *Holler, de Morb. intern.* relates a Story of a Man, who, after he had a long time labour'd under a Fever, Cardialgia, Vomiting, Gripes, and Stools like Pitch, at last dy'd; his Body being dissected, there was found an Ulcer, surrounded with Pustules, which had corroded all the Coats of the Stomach on that Part which leads to the Pylorus.

Another Way of generating this troublesome Disease is by Translocation. Thus we have known two Examples of this kind in the Female Sex, where a Cardialgia, with a Difficulty of Respiration, succeeded a considerable Tumor of the Parotid Glands, which disappeared after some external Applications. I have also observed, that a Hemisrania and a Cardialgia have appeared, and disappeared, alternately; so that when the Cardialgia was remov'd, the Hemisrania appeared, and *vice versa*.

That Pain of the Stomach which we call Cardialgia, when not attended with an Inflammation, is among the Number of those Diseases which are not generally mortal, except when they continue long. For this Reason the Disorder is dangerous when it succeeds other Diseases, especially acute and malignant Fevers; for *Hippocrates*, in the sixty-fifth Aphorism of his fourth Section, justly observes, "That, in Fevers, a violent Heat about the Stomach, and a Sensation, as it were, of a gnawing Pain about the Heart, are bad Symptoms." This Disorder is also to be class'd among the Number of these which return sometimes at stated Intervals, and sometimes not; which continue sometimes for a longer, and sometimes for a shorter Period; and which at one time are mild and gentle, and at another rage with intolerable Fury. As the first Approaches of this Disorder are generally accompany'd with a Coldness of the Back, a Chills of the Skin, and sometimes with a Yawning and Stretching; and as, in its Height, the extreme Parts, especially what we call the lower Extremities, become so cold, that a considerable Heat, when applied to them, is not perceiv'd; so this Indisposition is not remov'd till the Heat returns to the Extremities, and a warm Sweat arises over all the Body. And as, during the Cold, the Pulse is contracted, and small; so, in the Decline of the Disorder, it becomes larger and softer, which is a certain Sign, that the Indisposition is going off.

As a wise and skilful Physician ought not invariably to recommend stated Remedies for the Cure of a Disorder, nor at all times to proceed in a beaten Path; but to regard Causes of various Kinds, the Constitution of the Patient, preceding Diseases and Symptoms, together with other Circumstances of Importance; so 'tis necessary he should take the like Measures in the Cure of this Disorder. He ought, however, to keep these general Indications of Cure in his Mind, that he may be able to prescribe such Remedies as will afford Relief. The first is, that the Matter, peccant either by its Quantity or Acrimony, and which is lodged about the Stomach, be tempered, corrected, render'd mild, and gently removed, by Discutients, or proper Evacuants. The second is, to alleviate and soothe the violent Pains, which surprisngly impair the Strength, lest an Inflammation should succeed. The third is, if the Disorder is symptomatical, to have a due Regard to the primary and original Disease. The fourth is, by proper Remedies, to restore and confirm the Strength and Tone of the Stomach and Intestines, which have been weaken'd by the Violence of the Pains and Spasms.

Since it often happens, that the Saliva and Humours, accumulated and collected in the Region of the Stomach, do, by their long Retention, render the Bile in the Duodenum porraceous, æruginous, and highly corrosive, and, by corroding the nervous Coats, prove the Cause of the Cardialgia; and, as this frequently happens in hypochondriac Patients, as also in others, by a too liberal Use of acid Wines, and the Fermentation of unripe Fruits, it is agreeable to Experience to attempt the Cure only by Absorbents, and such Medicines as correct Acrimony. For answering this Intention, we recommend Powders prepar'd of Crabs-eyes, calcin'd Hartshorn, Mother of Pearl, Mountain Crystal, or rather the Lapis Specularis, (*Muscovy Glass*) prepared; especially if they are exhibited in a gently spirituous carminative Water. For correcting and restraining the Acrimony, we also recommend gelatinous and well saturated Decoctions of the Shavings of Hartshorn, and Water-gruel, qualified with sweet Almonds, and edulcorated with Syrup of white Poppies.

But when a highly acrid sulphureous and hot Bile, thrown into Commotions by an Excess of any Passion, is the Cause of this Disorder, it is advisable to mix a few Grains of purified Nitre with the above-mention'd Powders, of which a proper Dose is to be exhibited in a Decoction. But 'tis sometimes necessary gently to evacuate the corrected Bile by Stool. I have also learn'd from Experience, that when this troublesome Disorder arises from a too hot, effervescent, and caustic State of the Bile, repeated Exhibitions of half a Pint or more of pure cold Water, covering the Body well, and applying warm Fomentations to the Region of the Stomach, have proved singularly beneficial; since by that means an universal Diaphoresis

is excited, and the Disorder removed. I have also observed, that, by the same Remedy, the bilious Acrimony has not only been diluted and corrected, but also the intense Heat allay'd, and the Strength, impair'd by the Heat and Pain, in some measure restor'd. I have also seen a Cardialgia, accompany'd with a Cholera Morbus, considerably alleviated by this Medicine. The liberal Use of Whey and Emulsions is also of considerable Service in Cases of this Kind.

'Tis no uncommon thing, after tertian Fevers, to observe Patients afflicted with a troublesome Pain about the Præcordia, accompany'd with a considerable Languor of the Strength, Loathing of Food, Dryness of the Mouth, and sometimes with gentle Swoonings away, and hectic Heats; all which Symptoms were produced by an acrid and peccant Bile, collected in a large Quantity, and stagnating long in the Duodenum, when its peristaltic Motion is impair'd by the Shock of the Disease. This I learn'd from the Exhibition of an Emetic, two or three Grains, for Instance, of emetic Tartar, with a sufficient Quantity of Water; for by this means a large Quantity of Sordes was discharg'd, upon which I immediately observed the above-mention'd Symptoms to disappear. Hence *Hippocrates*, in the seventeenth Aphorism of his fourth Section, justly observes, "That, in Patients who have no Fever, Loathing of Food, a gnawing Pain at the Mouth of the Stomach, a Vertigo, accompany'd with Dimness of Sight, and a bitterish Taste in the Mouth, denote that Evacuations, by Vomit, are necessary."

In Cases where, to a bilious Cardialgia, a Vomiting, as it frequently happens, is join'd, I have afforded the Patient instantaneous Relief, by an Exhibition of the anodyne mineral Liquor, with cold Spring-water, or the Waters of the Flowers of Chamomile, Yarrow, Egyptian Thorn, the Lime-tree, Elder, Lilies of the Valley, and Primroses. In this Case the Physician is to be careful not to exhibit the hot stomachic or carminative Essences, nor to load the Patient's Stomach with the repeated Use of hot Infusions, since all these rather increase than diminish the Disorder.

But when an intense, pressing, and heavy Pain for a long time affects the Region of the Stomach; and when this Pain arises from acido-viscid Crudities, firmly adhering to the Coats of the Stomach and Duodenum, which very frequently happens in those who are just recover'd from a Disease, and in such as, from any other Cause, labour under a Weakness of the Stomach, then another and a different Method of Cure is to be follow'd; for, in such Cases, digestive Medicines, and those which act by a saline, oleous, aromatic, inciding, and corroborating Quality, are necessary. For answering this Intention we shall recommend the following Things, since Experience has convinced us of their Efficacy.

Take, then, of the Root of Arum, Burnet, Ginger, Galangals, the external Surface of Orange-peel, Cumin-seeds, and Mace, each a Dram; of Sugar-candy, a Quantity equal to all the rest of the Ingredients: Mix up into a Powder; a proper Dose of which is to be gently boil'd in the best Wine, and drunk.

The following Mixture is also very proper in such Cases:

Take of the Essence of Zedoary, of *Wedelius's* carminative Essence, and of the Spiritus de Tribus, each two Drams; and of my Balsam of Life, fifteen Drops.

But sometimes, before the Use of these, 'tis necessary, that the Collection of sordid and peccant Humours should be gently evacuated by Vomit, especially if the Patient has any Inclination that way. But, even when this is necessary, we must not venture upon more powerful Emetics than Ipecacuanha, since it neither strongly irritates the nervous Coats, nor, after its Operation, leaves a Disposition to vomit, as the Preparations of Antimony generally do.

If, by a Draught of caustic Poison, or the Exhibition of a drastic Purge or Vomit, any one is so violently seiz'd with this Disorder, as to have his Life immediately exposed to Danger, a more efficacious or instantaneous Relief is to be expected from nothing, than from the Use of sweet Milk, oleous Substances, Oil of sweet Almonds, and Olive-oil, drank in sufficient Quantities, exhibiting at the same time a Dose of Venice Treacle. But 'tis more advisable, at first, to give Milk only, or rather Cream, without the Treacle, lest the Vomiting and Purging; by which the poisonous and corrosive Matter is often most effectually evacuated, should be too soon stop'd.

When a Cardialgia, as a Symptom, attends other Diseases of the acute or of the exanthematous Kind, which rarely happens without Danger of a fatal Inflammation, then bezoardic Powders, with a few Grains of Nitre, and one Fourth or half a Grain of Camphire, are of singular Service, in consequence of their gently discutient and diaphoretic Quality. But, that these Powders may the more effectually answer the Intention, I advise them to be exhibited in an Emulsion prepared of sweet Almonds, the Four cold Seeds, the Seeds of the Carduus Mari-

rie,

fixe, and Elder-flower-water. And if the peccant Matter, repel'd from the Surface of the Body, and almost resembling the Nature of Poison, is again to be struck out to the Skin, I have often found, that the Intention was excellently answer'd by my anodyne mineral Liquor, mix'd with a fourth Part of the *Spiritus Buffi*, or of the Spirit of Tartar, exhibited at different times, as the Condition of the Patient requires: A proper and mild diaphoretic Regimen must be used at the same time.

When this Disorder derives its Origin from an Obstruction of the Menfes, in consequence of which the Impetus of the Blood is directed to the Præcordia, then Venesection in the Foot affords immediate Relief; provided it is not perform'd during the Paroxysm, but on its Remission, nor at the Time the Extremities are cold. Afterwards the Cure is to be completed by gentle Anodynes, and Discutients, externally apply'd. In all Cardialgias I recommend the Flowers of common Chamomile, and Preparations of them, as Remedies of singular Efficacy: Of this Kind is Chamomile-flower-water, distil'd Oil of Chamomile, which is delicate, genuine, and not adulterated with Oil of Turpentine, reduced to an Elæosaccharum. Any proper Essence also, well saturated with moderately strong Spirit of Chamomile-flowers, and made up with an Elæosaccharum of the Oil of the same, is highly efficacious in soothing spasmodic Motions. To this Class also belongs the Extract of Chamomile, which, with other proper Ingredients, may be made up into Pills. A Decoction of Chamomile-flowers, in Ale or Water-gruel, with an Addition of Oil of sweet Almonds, drank warm, is indeed a common, but at the same time an approved Remedy for this Disorder.

In Cardialgias of every Kind, anodyne and emollient Clysters never fail to prove beneficial: Of this Kind are those prepared of the Flowers of Chamomile, those consisting of the Oil of these Flowers, either by Coction or Distillation, and those prepar'd of the Four carminative Seeds. They answer the Intention best, when prepar'd with Milk. But 'tis sometimes necessary they should be twice or thrice injected; for, as in almost all violent Pains, so in this, they afford a singular Relief by their kindly and anodyne Warmth; as also by that Quality they possess, by which they soften and relax the rigid Fibres.

In violent Cardialgias, and Pains of the Præcordia, proper Remedies, apply'd externally to the Epigastric Region, are always observed to be of singular Advantage. And, amongst many others for this Purpose, I have often experienced the surprising Efficacy of the following; the first of which is a Liniment, to be prepar'd thus:

Take of Theriaca, and express'd Oil of Nutmegs, each an Ounce; of Castor, Saffron, and *Peruvian* Balsam, each one Dram; of the Oils of Cedar and Cloves, each twenty Drops; of Camphire, half a Dram.

The following Powders are also of singular Efficacy for this Purpose:

Take of Mint, of common and *Roman* Chamomile-flowers, and of Elder-flowers, each an Handful; of Bay and Juniper-berries, each half an Ounce; of Cumin and Caraway-seeds, of Cloves and Nutmegs, each two Drams. When they are sufficiently cut, and beat together, let the Species be included in a Bag, and apply'd warm to the Part affected; for Heat, in a certain Degree, has, from its very Nature, a Power of alleviating and discussing.

If Worms should happen to be the Cause of this Disorder, then a quite different Method of Cure is to be follow'd: But if they are lodged in the Stomach, the stronger Anthelmintics, especially those which operate by an acrid, drastic, and corrosive Quality, such as mercurial Preparations, Vitriol of Copper, Vitriol of Iron, aloetic Purgatives, or even Salts, in other respects proper enough, are by no means to be exhibited, because they often exasperate the Disorder; but warm Milk, with a sufficient Quantity of the Oil of sweet Almonds, is rather to be prefer'd. These Substances, in consequence of their anodyne Quality, and their affording Food for the Animalcules, in order to prevent their gnawing the Coats of the Stomach, are highly proper for the Cure of this Disorder; especially if we consider, that warm Milk, drank in large Quantities, will make the Patient retch, and dislodge these unwelcome Guests by Vomit.

Patients, subject to the Hypochondriaco-spasmodic Passion, are frequently long afflicted with Returns of these uneasy Pains; in which Cases, after the Exhibition of other Medicines to no Purpose, I have often seen the Waters of warm Springs, especially of the *Caroline*, used for some time, prove highly beneficial. But the Use of these ought sometimes to be repeated. That a hemorrhoidal Discharge, contributing greatly to the Relief of the Patient, has been produced by their Use, I have often observed. Besides, my *Elixir Balsamicum Viscerale*, mix'd with Essence of Castor, as also mild gently nitrated antispasmodic Powders, and Venesections at the Equinoxes, are of singular Service in chronical Pains, and Disorders of this Kind.

Those who are subject to Cardialgias, both in and out of the Paroxysm, ought carefully to abstain from Medicines of a saline Nature; of which Kind are the *Sedlitz* Waters, the Use of which I have often observed to do more Prejudice than Service in these Cases.

To prevent the Return of this troublesome Disorder, several Circumstances of Importance are carefully to be observed: First, then; they who are subject to Cardialgias ought not to use the more acrid Purgatives; because these, being in their very Nature prejudicial to the Stomach and its Coats, if frequently used, produce a Weakness of these Parts, than which nothing more effectually contributes to a Relapse. Besides this Misfortune attending them, they derive the Humours from other Parts of the Body to the *Primæ Viæ*. We are, however, to take care, that the Body be always kept soluble; which End is, in this Case, more safely obtain'd by Aliments than Medicines. The Back also, and the Præcordia, where the Stomach and its Orifices are situated, are carefully to be defended from the Cold by sufficiently warm Clothes; for 'tis scarce credible how prejudicial Cold is to the nervous Parts, and those Diseases arising from a Weakness of them. But 'tis difficult to persuade Mankind of the Truth of this. With respect to Aliments, the Patients must abstain from all Substances possess'd of a high and intemperate Quality, Things too salt, or such as are indurated in the Smoak, Pepper, Garlick, Things pickled in Vinegar, Horse-radish, and other Things of a like Nature. But we recommend, as proper Aliments, Broths of Fowls and Veal; but order the Patients to abstain from pinguious Fleshes, especially when they are to drink any thing which is cold, or when the external Cold has Access to the Region of the Stomach.

The Heart-burn is usually caused either by an alkaline or acid Acrimony prevailing in the Stomach. If by a redundant Acid, which is most generally the Case, alkaline Substances will cure the present Disorder, as testaceous Powders, or a Clove chew'd in the Mouth, and swallow'd gradually: But, if the Disorder proceeds from an Alkali, the Cure will consist in the Exhibition of acid or acescent Substances.

Galen recommends Vinegar of Squills, taken in a Morning, as a most effectual Remedy for preventing a Cardialgia: But *Hippocrates*, in the second of his *Epidemics*, orders hot Bread, with pure Wine, to be given in this Disorder.

I remember an habitual Cardialgia treated successfully, by a foreign Physician, by a Mixture, in which the only Ingredients were Preparations of Mint, as Mint-water, Spirit of Mint, Salt of Mint, and Syrup of Mint.

CARDIMELECH. A fictitious Term in *Dolæus, Encyclop. Lib. 2.* by which he intends to express a sort of particular active Principle, residing in the Heart, appointed to what we commonly call the *Vital Functions*, as Respiration, and Distribution of the Blood thro' the Body.

CARDINALIS FLOS. The *Trachelium Americanum*, or *American Throatwort*; so call'd because its Flower, by the intense Redness of its Colour, seems to emulate the scarlet Robes of a Cardinal, especially when the Sun shines on it. *Blancard.*

CARDINAMENTUM. A Hinge-like Articulation.

CARDIOBOTANON, καρδιοβοτανον. The Name of an Herb in *Myrepsus, de Unguentis, Cap. 46.* which the *Latin* Copies, as *Fuchs* says, render *Carduncellus*, by which they mean the same as *Carduus benedictus*; but he believes, that *Myrepsus*, by καρδιοβοτανον, intended what we call *Cardiaca*, or Motherwort; both because they seem to agree very well in Name, and also because the Herb *Cardiaca* cuts, attenuates, and discusses gross Humours.

CARDIOGMUS, καρδιωγμός (from καρδιᾶωω, to have a gnawing Pain at the Mouth of the Stomach). A biting or vellicating Sensation at the Mouth of the Stomach, from an acrimonious Humour infesting that Part. It is a Word frequently used by *Hippocrates*, and is thus explain'd by *Galen, Comment. ad Aph. 17. Lib. 4.* Καρδιωγμός, διήξιν καρδίας, τῆς τῆς γαστρὸς ὠνόμαζον ὃ δὲ παλαιὸι καὶ τὸτο καρδιαν. "Cardiogmus is a biting Sensation at the Cardia, that is, Mouth of the Stomach, which Part the Antients call'd Cardia." And again, *Lib. 8. C. M. S. C.* Εἰρηται πολλὰκις ὡς τὸ τῆς γαστρὸς σῶμα καλεῖν ἔθ' ἐστὶν τοῖς ἰατροῖς, ὥστε καρδιαν, ἔτω καὶ σβημαζον, &c. "We have often observed, that it is customary with Physicians to call the Mouth of the Ventricle, or Stomach, sometimes Cardia, sometimes Stomachus; but formerly Cardia was the more usual Appellation, whence τὸ καρδιᾶωω, and ἡ καρδιαγλία, are still in Use (to express the Pain or biting Sensation at the Mouth of the Stomach)." *Eustathius* explains καρδιᾶωω by καρδιαν ἀλγῶν καὶ αὐτιᾶν. "To be affected with a Pain at the Mouth of the Stomach, and a Nausea." *Hesychius* expounds the same Word by τὴν καρδιαν ἀλγῶν, but adds, that with some it signifies δακνιδὲς σβημαζον ὑπὸ λιμῇ, "to have a biting Sensation at the Mouth of the Stomach from Hunger;" and that it is also taken for ναυσία, "to be affected with a Nausea, or Aversion to Food." But *Eratian* is most full to the Purpose, in expressing the Force of this

this Word καρδιώσεν. "The Antients, he says, call'd the Mouth of the Stomach *Cardia*, which we now commonly call *Stomachus*; whence καρδιώσεν and καρδιαλγείν signify to be affected with a Pain and Nausea at the Stomach; and καρδιώγυς is used to express a biting Sensation at the Stomach. There is another *Cardiognus* [καρδιώγυς] which belongs to the *Cardia*, taken properly as one of the Viscera, (the Heart) being a *Diognus*, [διώγυς] that is, a quick and vehement Palpitation of that Part." *Galen*, in his *Comment. ad Aph.* 65. *Lib.* 4. explains the Homonymy in the following Words: "Most of those, he says, who have expounded the Aphorisms, have understood καρδιώσεν and καρδιαλγείν in the same Sense; but some take καρδιώγυς for a palpitating Motion of the *Cardia*, understood as one of the Viscera. Now a vehement Effusion being excited in the Stomach by an Effervescence of yellow Bile within its Coats, it is agreeable to Reason, that, when the Coats of the Stomach are thus affected, its Orifice should also suffer by a biting Sensation, which is therefore a bad Symptom. But if you will have *Cardiognus* to mean a quick and swift Motion of the *Cardia* (Heart) most like Palpitation, it is the worst of Symptoms, as it indicates an Inflammation of the vital Principle." The Word καρδιώσεν, explain'd by *Ero-tian* before, is read in the following Passage of *Hippocrates*, (*Lib.* 1. περὶ γυναικ.) ἐκδοὺς δὲ ἐστὶ καὶ τὸ μισθὸν χεῖρ πνεύματιν, καὶ φέρεται, καὶ καρδιώσεν. "It is probable, that, in the intermediate Time, the Woman is feverish, shivering, and molested with a biting Pain at the Mouth of the Stomach." He uses the Word in many other Places of the same Book. See *CARDIALGIA*. *CARDIOTROTUS*, καρδιότροτος. A Person who has a Wound in his Heart. *Galen*.

CARDIR, Tin. *Johnson*.

CARDIS, Mars, Iron. *Johnson*.

CARDO. The Articulation call'd *Ginglymus* is sometimes express'd by *Cardo*, on account of its Similitude to a Hinge.

CARDONIUM. Wine medicated with Herbs, in the Phrase of *Paracelsus*.

CARDOPATIUM. A Name for the *Carlina acaulos*, *magna flore*. *Rieger*.

CARDUELIS, Offic. Will. Ornith. 1. 189. *Raii Ornith.* 256. *Ejusd. Synop.* A. 89. *Aldrov. Ornith.* 2. 798. *Gefn. de Avib.* 215. *Jonf. de Avib.* 68. *Charlt. Exer.* 87. *Mer. Pin.* 175. *Schw. A.* 233. *Bellon. des Oyse.* 353. **THE GOLD-FINCH.**

This Bird roasted, and eat, is said to be a Remedy against *Iliac* and *Colic Pains*. *Dale*.

CARDUNCELLUS. It is not certain whether this Word imports the Herb *Carduus Benedictus*, or the *Cardiaca*, Motherwort. See *CARDIOBOTANON*.

CARDUUS. The Thistle. See *ACANTHUS*.

Many Sorts of *Carduus* were taken notice of by the Antients, but it is no easy Matter to distinguish them by their Names. *Pliny*, *Lib.* 20. C. 23. informs us, that the Root of every sort of *Carduus*, boil'd in Water, causes Thirst, and corroborates the Stomach; and that it has some Effect upon the Uterus, causing Males to be generated, according to the Report of *Chæreas the Athenian*, and *Glaucias*.

Apicius, L. 3. C. 19. gives several Methods of preparing these Plants for culinary Purposes; which the Reader who thinks Cookery of more Importance than Physic, may consult.

The modern Botanic Authors have very much embroil'd the Species of *Carduus*, every one having taken the Liberty of classing those Plants, which were most agreeable to their particular Systems, under the *Cardui*, and banishing others. *Boerhaave* enumerates thirty-three Species.

The Characters of the *Carduus* are:

The Leaves grow alternately on the Branches, and are prickly: The Heads are, for the most part, squamose and prickly; and the Plant is, in every Part, beset with Multitudes of rigid Prickles; and the Plants, at least most of them, are laescent.

1. *Carduus*; *Pycnopolycephalus*; *Sylvestris*; *Triumfett.* 100. 103. *Ic. M. H.* 3. 153. a. b.

2. *Carduus*; *spinosissimus*; *angustifolius*; *vulgaris*. C. B. Pin. 385. *Carduus*, *sylvestris*, *tertius*. *Dod.* p. 740. *Carduus*, *caule crispo*. J. B. 3. 59. b. *Flore purpureo*.

3. *Carduus*; *spinosissimus*; *angustifolius*; *flore albo*. b.

4. *Carduus*; *caule crispo*; *capitulis minoribus*. b. *Carduus aspinus*, seu *sylvestris*. **THISTLE UPON THISTLE.**

This Thistle grows to be three or four Foot high, and sometimes to be taller than a Man, if the Soil is agreeable to it. The Root is single, white, and surrounded with numerous capillary Fibres; the Stalk an Inch thick, somewhat hairy, greenish, furnish'd with prickly curl'd jagged Membranes, growing to it lengthwise, hollow, and divided into a Multitude of very long Branches. The Leaves are nine Inches, or somewhat less, in Length, jagged, of a dark Green, hairy, and beset with numerous very sharp Prickles. The Heads of the Stalk and Branches are squamous, set with softer Prickles, and open into purple or white Flowers, follow'd by dark-colour'd Seeds, producing Down at their Top. It grows by the Sides of Ditches, near Hedges, and among Bryars.

Vol. II.

Riverius observes, that half an Ounce of the Roots, boiled with two Drams of Liquorice, makes a good Medicine for those who are afflicted with the Stone, cleansing the Bladder and Kidneys from Sand and Gravel.

5. *Carduus*; *lanceolatus*; *latifolius*. C. B. P. 385. M. H. 3. 153. *Carduus*, *lanceolatus*, seu *sylvestris*, *Dodonæi*. J. B. 3. 58. b. *Flore purpureo*.

6. *Carduus*; *lanceolatus*; *latifolius*; *flore albo*. b.

7. *Carduus*; *lanceolatus*; *serocior*. J. B. 3. 58. b.

8. *CARDUUS HÆMORRHOIDALIS*, Offic. Chom. 762. *Cod. Med.* 28. *Carduus vinearum repens sonchi folio*, C. B. Pin. 377. *Boerh. Ind. A.* 136. *Dill. Cat. Giff.* 113. *Carduus vulgarissimus viarum*, *Ger. Emac.* 1173. *Raii Hist.* 1. 310. *Synop.* 3. 194. *Hist. Oxon.* 3. 156. *Mer. Pin.* 21. *Carduus vulgarissimus*, *radice repente ceanthos Theophrasti*, *Merc. Bot.* 1. 27. *Phyt. Brit.* 23. *Carduus ceanthos seu viarum & vinearum repens*, *Park. Theat.* 959. *Carduus serpens lævicaulis*, J. B. 3. 59. *Cirsium arvense sonchi folio*, *radice repente*, *flore purpurascens*, *Tourn. Inst.* 448. *Rupp. Flor. Jen.* 151. *Buxb.* 72. **THE COMMON CREEPING WAY-THISTLE.**

M. *Herman* had Reason to believe, that this Plant is the same with the *Carduus in avena proveniens*, C. B. Pin. and the *Carduus serpens lævicaulis*, J. B. 3. 59. Mr. *Ray* adds to it the *Carduus spinosissimus*, *capitulis parum aculeatis*, C. B. Pin. But the Figure of the *Onopryx alter*, *Lugd.* does not very well agree with it. Most Authors, that have mention'd this Plant, have taken no notice of the creeping of its Roots: *Columna's* Figure and Description are excellent. *Martyn's Tournefort*.

The Root is whitish, and now-and-then inclining to black, of a pretty strong Smell, sending forth Fibres as it creeps along under the Ground, and propagating itself to an immense Degree. It grows to the Height of a Cubit and a half, and sometimes more, with a slender, single, round, striated, green, and sometimes red Stalk, which is hairy near the Ground, and furnished with a few small Prickles, which have Leaves growing to them, jagged, like those of the *Sonchus*, or *Sow-thistle*, sometimes woolly, sometimes smooth, sometimes narrow; others wider, and not so deeply jagged, with their upper Face green and shining, but paler underneath. The Stalk runs out into Branches, bearing small, oblong, turbinate, squamous Heads, which are furnished with short, but not at all stiff Prickles, and produce Flowers of a faint red Colour, succeeded by small oblong Seeds, of a brown or dark-olive Colour, and involv'd in Down. The Flower often changes its Colour; and the upper Part of the Stalk is sometimes converted into a Body of a thick Substance, and of a nearly oval Figure, which serves as a Matrix for a kind of Insect.

This Thistle is too frequent in Tillage Grounds, and is often found in uncultivated Places, and by the Way-side; it creeps deeply under the Earth, whence it is very difficult to be extirpated; and it flowers in *July* and *August*.

It is called *Hæmorrhoidalis* (*Hæmorrhoidal*) from its Effects; for the Herb bruised, or boiled in Water, and reduced to the Form of a Cataplasin, mitigates the Pain of the *Hæmorrhoids*. Some affirm, that the Tubercles arising from the Bittings of Insects on the Stalk, if worn in a Bag, or ty'd in a Patient's Shirt, produce the same Effect; others advise wearing the dry'd Heads of the Plant in a Bag.

9. *Carduus*; *vinearum*; *repens*; *folio sonchi*; *flore albo*. C. B. Pin. 377. b.

10. *CARDUUS MARIÆ*, Offic. *Ger.* 989. *Emac.* 1149. *Raii Hist.* 1. 312. *Synop.* 87. *Carduus Mariæ vulgaris*, *Park.* 975. *Carduus Marianus*, seu *lacteis maculis notatus*, J. B. 3. 52. *Carduus Marianus seu lacteus*, *Chab.* 348. *Carduus albis maculis notatus vulgaris*, C. B. 381. *Hist. Oxon.* 3. 155. *Tourn. Inst.* 440. *Boerh. Ind. A.* 136. *Dill. Cat.* 129. *Buxb.* 56. **LADIES THISTLE.**

This Thistle is distinguished from all others which grow in *England*, in that its Leaves, which are large and long, of a shining green Colour, cut into several Laciniae, full of sharp hard Prickles, have all the upper Part spotted with long and broad white Spots. The Stalk arises to be four or five Foot high, full of the like Leaves; on the Tops of the Stalks grow large Heads, whose scaly Covers are full of stubborn, hard Prickles, each Scale terminating in one; in the Middle of the Heads, come Thrums of purple fistular Flowers, which are succeeded by white Seed, oblong, and somewhat flattish, inclos'd in a great deal of Down. The Root is thick, growing deep in the Ground: It grows frequently upon Banks and Borders of Fields, and flowers in *June*. The Leaves and Seed are used.

When the Leaves of this Thistle come first out of the Ground, and are young and tender, they are boiled with salt Meat, like Colewort, the Prickles being first cut off, and are esteem'd by many as a Dainty. It is supposed to partake of the Virtues of the *Carduus Benedictus*, but in a lower Degree. It is commended by some as a Specific for the *Pleurisy*, especially an Emulsion of the Seeds: It is helpful also for the *Jaundice*, the *Stone*, and *Stoppage* of the *Urine*. It is but seldom used in the Shops. *Miller's Bot. Off.*

Its Leaves are bitter, astringent, and give but a very faint red Colour to blue Paper: They seem to contain a Salt, resembling the *Oxysal diaphoreticum Angeli Salæ*, that is, an acrid Salt, abounding with Acid; thus it is sudorific and diuretic. Four Ounces of the Juice of its Leaves give great Relief in the Dropsy. *Martyn's Tournesfort*.

The Seed is of a stimulating and opening Property; the Dose is a Dram in Powder, but it is generally used in Emulsions, being mix'd with other Seeds for that Purpose. Its frequent Use in Pleurifies makes it called by the Germans *Stech-Korner*, that is, (a Remedy) against pungent Pains; and, indeed, an Emulsion prepared of the Seed, with Honey, or a little Syrup of Violets, and drank, is highly to be commended in severe pleuritical Pains. *M. Tournesfort*, for the Pleurisy, and that Species of Rheumatism which resembles it, advises an Emulsion, prepared of two Drams of the Seeds of *Carduus Mariae*, with six Drams of the distilled Water of the Leaves. "This Medicine, says *Pontedera*, gives Relief under all Pains, "mollifies Hardnesses, evacuates Humours, and maturates "Pus; wherefore it is recommended as a present Remedy for "all Disorders of the Lungs and Throat." The Seed pulverized, and taken in Wine, from one to two Drams, is recommended by *Lindanus*, according to *Ettmuller*, against an Hydrophobia, and the Bite of a mad Dog, as being an excellent Sudorific. The distilled Water of the Herb is much commended by some against Distempers of the Breast, Lungs, Liver, Spleen, Kidneys, and Uterus, and for opening Obstructions of those Parts. But this Water is scarce used at present, and may very well be spared without any Damage to the Sick, because the Virtues of the Plant, which depend on its Bitterness and astringent Quality, will not ascend into the Alembic. Externally, they say, it is good for Nomæ, and phagedenic and corroding Ulcers, if Linen Cloths be moisten'd with the same, and apply'd to the affected Parts. Whether this be true, I shall not determine, but leave every Man at Liberty to think as he pleases; tho', to speak my Mind freely, I can hardly believe this Water to be preferable to any other distilled Water. *Rieger*.

11. *Carduus; Mariæ; non maculatus*. M. H. Blæf. a.

12. *Carduus; maculis albis notatus; exoticus*. C. B. Pin. 381. M. H. 3. 155. *Carduus, lacteus, Syriacus*. Camer. 35. Ic. 10. *Carduus, lacteus, peregrinus*. Camerarii. J. B. 3. 53. *Flore purpureo. Cnicus, albis maculis notatus, flore purpureo*. T. 450, a.

13. *Carduus; maculis albis notatus; exoticus; flore albo*. H. R. P. *Cnicus, albis maculis notatus, flore albo*. T. 451. *Carduus, leucographus, capitulis acutissimis, ferocissimis, spinis eminentibus circumdatus*. H. C. b.

14. *Carduus; galactites*. J. B. 3. 54. M. H. 3. 154, b. THE MILKY THISTLE.

15. *Carduus; humilis; alatus; sive Carduus Mariæ; annuus; folio lituris obscuris notato*. H. C. b.

16. *Carduus; nutans*. J. B. 3. 56. *Carduus, alatus, major, flore rubro mæschato, capite nutante*. M. H. 3. 153, b. THE MUSK, or NODDING THISTLE.

17. ACANTHIUM, Offic. *Acanthium vulgare*, Park. 979. Raii Hist. 1. 313. *Acanthium album*, Ger. 988. Emac. 1149. *Spina alba latifolia tomentosa sylvestris*, C. B. 382. *Spina alba sylvestris Fuchsio*, J. B. 3. 54. Chab. 311. *Carduus tomentosus Acanthium dictus vulgaris*, Raii Synop. 87. *Carduus tomentosus latifolius sylvestris, spina alba, vel Acanthium dictus*, Herm. Cat. 119. *Carduus alatus tomentosus latifolius vulgaris*, Hist. Oxon. 3. 152. *Carduus tomentosus, acanthi folio, vulgaris*, Tourn. Infl. 441. Dill. Cat. 122. Boerh. Ind. A. 136. Buxb. 55. *Carduus Acanthium dictus*, Volek. 84. *Carduus leucanthemus*, Schw. 38. COTTON-THISTLE.

The Stalk of this Thistle is three or four Cubits high, striated, woolly, hollow, furnished with Membranes growing to it lengthwise, which are very prickly, sinuated, or bent in, considerably prominent, and cover'd with whitish Hairs. The Leaves, which are a Continuation of these Membranes, are a Foot or more in Length, sinuated, arm'd with Prickles, and hairy and white on both Sides alike, especially the smaller Leaves before the Stalk is grown out. The Tops of the Stalks and Branches are adorned with Heads, which are generally single, large, flat, and broad, and scaly or squamous, the Scales running out into long sharp, and stiff Prickles, which stick out from the Head; the Prickles on the Heads and Leaves are of a deep Yellow. The Flowers are of a purplish Red, seldom white, and are succeeded by large furrow'd Seeds, crested with Down, and involv'd in a lanuginous Substance, and of an acrid and bitterish Taste. The Root is tender, white, of a sweetish Taste while the Plant is sprouting forth, but harder and ligneous when the Stalk is grown. It grows every-where by the Sides of Paths, and on the Brinks of Ditches. It flowers in its second Year, from June to August; when the Seed is ripe, the Root perishes.

The Root is said to be opening and diuretic, carminative and stomachic, discutient and resolvent. Some commend it for the Tooth-ach, and for epileptical Disorders in Infants.

The Flowers are used to curdle Milk; therefore some call the Plant *Presura*.

18. *Carduus; tomentosus; acanthi folio, angustiore*. T. 441. *Spina, tomentosa, altera spinosior*. C. B. Pin. 382. *Carduus, quibusdam dictus Acanthium Illyricum, aliis vero Onopordon*. J. B. 3. 55. *Onopordon*. Dod. p. 738. *Acanthium sylvestre, flore albo*. H. Eyft. Æst. o. 11 F. 7. Fig. 2. *Carduus, tomentosus, Illyricus, procerior*. M. H. 3. 152, b.

19. *Carduus; tomentosus; acanthi folio; altissimus; Lusitanicus*. T. 441. *Acanthium altissimum, Lusitanicum*. H. R. Par. M. H. 3. 153. *Acanthium Lusitanicum*. M. H. Blæf. b.

20. *Carduus; tomentosus; acanthi folio; Alepicus; magno flore*. T. 441. *Acanthium, ex Alepo, caule alato, flore magno, cæruleo, cinaræ instar*. H. Edinb. b.

21. *Carduus; Græcus; parvus; acanthi folio tomentoso; flore minore*. T. Cor. 31, b.

22. *Carduus; Creticus; acanthi folio viridi, & glutinosi; flore purpurascente*. T. Cor. 31, b.

CARDUUS ERIOCEPHALUS, Offic. Ger. Emac. 1152. Merc. Bot. 1. 27. Phyt. Brit. 22. Mer. Pin. 20. Boerh. Ind. A. 137. Buxb. 56. *Carduus capite rotundo tomentoso*, C. B. Pin. 382. Hist. Oxon. 3. 155. Tourn. Infl. 441. Rupp. Flor. Jen. 150. *Carduus capite tomentoso*, J. B. 3. 57. *Carduus tomentosus Corona fratrum dictus*, THE FRIERS CROWN THISTLE, Park. Theat. 978. Raii Hist. 1. 311. Synop. 3. 195. WOOLLY-HEADED THISTLE.

It shoots forth a thick striated Stalk, which is divided into numerous Branches, and runs up the Height of three or four Cubits, cover'd with a white woolly Substance, not at all prickly. The Leaves are armed with long, rigid, sharp Prickles, jagged, large, extending a Foot, or a Foot and a half, in Length, but narrow, woolly on the lower Part, but green on the upper, and constituting, as it were, four Rows of Leaves, with their Jags, dispos'd at Distances, the two lower Rows being flat and equal, the others elevated. On the Tops of the Stalks are numerous, scaly, prickly, round Heads, cover'd with Plenty of a fine white Down, and producing from their Summits Flowers of various Colours; under the Flowers is a white pulpy Substance, of a grateful and aromatic Taste. The Seed is oblong, shining, lubricous, ash-colour'd, striated, moderately flat, of a sweet Taste, and involv'd in a woolly Substance. The Root is thick, and not of an ungrateful, but aromatic Taste, as well as the Stalk and Leaves, if you except a white, dry, and insipid medullary Substance; when the Heads are cut off, there appears a milky Juice. It grows by the Sides of Fields, in Meadows, and in mountainous and uncultivated Places. It flowers in July and August, and took the Name of *Eriocephalus* from *εριο*, Wool, and *κεφαλη*, a Head; and it is also called *Corona Fratrum*, because the Branches, which are of equal Height, and loaden with their woolly Heads, stand in a Circle about the large Head on the Top of the Stalk, as Monks use to do about their Abbot, or Prior. Some boil the Heads before the Flowers come forth, and seasoning them with Butter and Pepper, after the manner of *Arthichokes*, serve them up at Table as a delicious Dish at a second Course. *Rieger*.

Borelli says, its Juice, or bruised Leaves, cure the Cancer of the Nose and Breast: He calls it *Ornipodon*, and recommends the frequent Use of it in those Cases. *Martyn's Tournesfort*.

24. ACARNA, Offic. *Acarua Theophrasti*, Ger. 1012. Emac. 1175. *Acarua major caule non folioso*, C. B. 379. Park. 966. *Acarua similis Carduus polyacanthus*, Leon di Cardi Maschio. Casabonæ, Chab. 356. *Polyacanthus Casabonæ acarua similis*, J. B. 3. 92. Raii Hist. 1. 315. *Carduus polyacanthus folioso caule, Acarna dictus*, Hern. Cat. 120. *Carduus polyacanthus, caule non folioso Acarna major dictus*, Pluk. Almag. 85. *Carduus cæruleus procerior, spinis ternis per intervalla foliorum marginibus donatus*, Hist. Oxon. 3. 159. *Carduus seu Polyacantha vulgaris*, Elem. Bot. 350. Tourn. Infl. 441. FISH-THISTLE.

This grows spontaneously in Italy; but I find no particular medicinal Virtues ascribed to it.

25. *Carduus; canescens; aculeis flavescentibus munitus. Acarnæ similis, flore purpureo, Chamaeleon Salmanticensis Clusii*. J. B. 3. 91. *Cnicus, polyccephalus, canescens, aculeis flavescentibus munitus*. T. 451. *Chamaeleon, Salmanticensis*. Clus. H. 154. *Acarua, major, caule folioso*. C. B. 379. H.

26. The twenty-sixth of Boerhaave is the *Chamaeleon*, niger, umbellatus, flore cæruleo hyacinthino, which Dale makes a Species of the *Carthamus*. See CARTHAMUS.

27. *Carduus; humilis; aculeatus; ptarmicæ Austriacæ foliis*. Triumf. 96. *Carduus, stellatus, foliis integris, flore purpureo*. H. R. Par. *Carduus, stellatus, leucii lutei foliis*. A. R. Par. 69. *Carduus, leucii folio*. M. H. Blæf. a. *Semina huic pappe carentia*.

28. *Carduus; mollior*. Clus. H. 150. b.

29. *Carduus; Creticus; tomentosus; folio acanthi; flore magno, purpurascente*. T. C. 31, b.

30. *Carduus; Hypericus; altissimus*. Salvad.

31. *Car-*

31. *Carduus*; *Orientalis*; *folio acanthi candidissimo*; *flore parva, suaverubente*. T. C. 31. b.

32. *Carduus*; *leucographus*; *purpureus*; *capitulis acutissimis, serotissimis, spinis eminentibus subtus circumdatus*. H. C. *Est flore albo*. a.

33. *Carduus*; *palustris*. C. B. P. 377. Prodr. 156. Park. *Carduus, polyacanthos*, 3. Ger. *Carduus spinosissimus, erectus angustifolius, palustris*. M. H. 3. 153. b.

Dale mentions amongst the *Cardui*, the

ACANUS, Offic. *Acanus Theophrasti*, Park. 975. Raii Hist.

1. 314. *Carduus latifolius acinus obsoletæ purpuræ ferens*, C. B. 380. THEOPHRASTUS'S THISTLE.

This grows in *Crete*: The young Shoots, before the Stalk is form'd, are us'd in Food. I find no Virtues ascrib'd to it.

CARDUUS ALTILIS is the Artichoke. See CINARA.

CARDUUS BENEDICTUS. See CNICUS.

CARDUUS BRASILIENSIS, *foliis aloes*, is the ANANAS, which see.

CARDUUS CHRYSANTHEMUS is the *Scolymus Theophrasti*, which see.

CARDUUS DOMESTICUS, or SATIVUS, is the Artichoke. See CINARA.

CARDUUS FULLONUM is the Teasel. See DIPSACUS.

CARDUUS STELLATUS is the CALCITRAPA, which see.

CARDUUS *stellatus luteus foliis cyani*, is the *Jacea stellata, Spina solstitialis dicta, foliis cyani*.

CARDUUS VENERIS is the DIPSACUS, which see.

CARDUUS XERANTHEMUS: It is an Epithet of some of the Species of the CARLINA, which see.

CAREBARIA, *καρηβαρία*, from *καρη*, the Head; and *βάρος*, Heaviness. An uneasy, and somewhat painful Heaviness of the Head.

CARENA. The twenty-fourth Part of a Drop: *Rulandus*.

CARENUM, *καρηνον*, the Head. *Galen*.

CARETTI. A Name of the BONDUCH, which see.

CAREUM, Caraway.

CARICA; a Fig, commonly one that is dry'd.

CARICUM, *καρικόν*, a cathartic Medicine, which deterges sordid Ulcers, and eats away proud Flesh, *Hippocr. de Ulceribus*: It is prepared of black Hellebore, Sandarach, Squama *Æris*, wash'd Lead, Sulphur, Orpiment, and Cantharides; these, being mix'd, are made up with Oil of Cedar into a liquid Medicine; sometimes there is added Arum, in Decoction or Juice, or the Powder of it mix'd with Honey. The dry Medicine, or Powder for the same Purpose, is prepared of the same Ingredients, omitting the Oil of Cedar, and the Honey; it is also made of black Hellebore and Sandarach only. *Καρικόν*, in *Galen's Exegetis*, is thus expounded: *Καρικόν τι ἐδεσμα ἔσται ἀνομάζει, ἢ καὶ τὴν σκευασίαν ἐν τῷ περὶ ἐλκῶν γράζει*: Here *Forcius*, for *ἐδεσμα*, which signifies something eatable, and therefore, as he says, must needs be erroneous, will have substituted *σκεύασμα*, "Preparation," or *ἄλειμμα*, "an Ointment," or some such Word; and then the Passage may be thus rendered, "Caricum is a kind of medicinal Composition, so called by him (*Hippocrates*), the Preparation of which he gives us in his Book of Ulcers." Some write *Carycum*, and fancy it takes that Name from *καρύον*, a Walnut; but erroneously; for there is no Mention of Walnuts. *Καρικόν* is also an Oil, in *Athenæus*, *Lib. 2*.

CARIDES, *καρίδες*, Shrimps. *Galen*.

CARIES. A Disease of the Bones so call'd. See OS.

CARIM-CURINI, H. M. *Frutex Indicus spicatus, floribus galeatis, vasculo bivalvi dicocco*. An Indian Shrub, which bears galeated Flowers, of a greenish azure Colour, growing in a Spike, with bivalve Seed-vessels, each of the two Cells containing a very flat roundish Seed, cuspidated like a Heart; when ripe, of a yellowish, or pale reddish Colour, of a rough Superficies, especially when dry, and quite insipid.

The Root, which is fibrous, whitish, and its Bark of a bitterish Taste, drank in a Decoction, is of Service in arthritic Pains; boiled with Oil and Butter, it increases the Strength; the same bruised, and given with the Oil *Sirgelim*, mitigates the Pains of the Gout. The Decoction of the Root and Leaves, being drank, breaks the Stone; and the Leaves bruised, and ty'd upon the Belly, have the same Virtue; the expressed Juice of the Leaves serves for the same Purpose. A Decoction of the Leaves helps the Dysury; an Infusion of them in hot Water, being drank, mitigates the Cough, and Pains of the Stone; and works the same Effect, if the Belly be fomented with it.

REM CURINI, H. M. *Frutex Indicus spicatus, florum pediculis brevioribus*. It differs from the preceding, only in the Leaves, and seminal Vessels.

A Decoction of the Root is good in Fevers, and Disorders of the Head. The Leaves fry'd in Oil, and afterwards bruised, are apply'd to Ulcers, in order to heal them. *Raii Hist. Plant. p. 1709*.

CARIMPANA. A Species of Palm-tree. See PALMA.

CARINA, with the ancient Botanists, signify'd the osseous hard Shell of Walnuts: With the Moderns it denotes any thing, whose Cavity runs into an Angle, like the Keel of a Ship; whence the under Leaf of a papilionaceous Flower is called *Carina*. In the Account of Gramina, or Grasses, *Carina* is used to signify that furrow-like Cavity which runs thro' the whole Length of the Leaves of the Cyperoides, and Cyperus Grasses, or graminifolious Plants; and ends in an acute Angle; and hence those Leaves, being excavated, or hollowed into an acute Angle, are called *carinated*. Sometimes by *Carina* is to be understood the Prominence of this Furrow, which juts out on the Backside of the Leaf, and runs like a Nerve through the Middle of it. *Rieger*.

CARINA, in Zoology; a Word apply'd first, I think, by *Malpighi*, to the first Rudiments of the Spine of a Chicken; during Incubation.

CARIUM TERRÆ, Lime. *Rulandus*.

CARLINA. The Carline-thistle.

The Characters are;

It hath, for the most part, a radiated Flower, from whose Disk arise many Florets, which rest upon the Embryos; but the plain Petals, which arise from the Crown, have no Embryos fix'd to them: The Flower-cup is large and prickly, inclosing the Embryos. These Embryos afterwards become Seeds, which have a Down adhering to them, and each is separated by an imbricated Leaf.

Boerhaave takes Notice of seven Species of the Carline-thistle.

1. CARLINA, *Chamaeleon albus, Carlina*, Offic. *Carlina, sive χαμαίλιον λευκός, Dioscoridis*. THE WHITE CARLINE-THISTLE OF DIOSCORIDES, WITH THE RED FLOWER, Ger. Emac. 1157. Ger. 995. *Carlina humilis*, Park. Theat. 968. Raii Hist. 1. 288. *Carlina acaulos magno flore*, C. B. 380. Tourn. Inst. 500. Boerh. Ind. A. 101. *Carlina caulifera vel acaulis*, J. B. 3. 64. *Carlina, Carolina*, Chab. 353. *Carlina major*, Schw. 39. *Carduus Xeranthemos, flore albo ampliore acaulis*, Hist. Oxon. 3. 162. CARLINE-THISTLE.

The Leaves of the Carline-thistle are very long and narrow, cut into several deep Segments, and arm'd with a great Number of sharp Prickles. They lie flat on the Ground, and encompass a large stalkless Head, set about with smaller and shorter prickly Leaves. Out of this Head arises the Flower, consisting of a Border of white, shining, sharp-pointed Petals, set about a yellow-fistular Thrum, which, passing into Down, incloses a great Number of small long shining white Seed. The Root is long and large, of a reddish-brown Colour on the Outside, and whitish within, of an aromatic Taste. It grows in Germany, and other Parts beyond the Seas; flowering in July.

The Root, which is the only Part used, is accounted sudorific, alexipharmic, and useful against all contagious pestilential Diseases, and even the Plague itself. It is likewise diuretic, helps the Dropsy, promotes the Catamenia, and is serviceable in hypochondriac Distempers. It is rarely used in England. *Miller's Bot. Off.*

This Plant, as many suppose, is call'd, by *Dioscorides* and *Pliny*, *Chamaeleon*, from the Variety of its Leaves, which are green, whitish, Sky-colour'd, and sometimes red. It is call'd *ἰξία* (*Ixia*) from a sort of Bird-lime which grows on its Roots, and is gather'd thence, and used instead of Mallich; for *ἰξία* signifies Bird-lime. The Germans call it *Eber Wurtzel*, that is, Boars-root, because the Roots of it are greedily coveted by Boars, and not because it kills Swine, if given them in their Food; for this is contrary to Experience. *Pontedera* thinks it is mistaken for the Chamaeleon of *Dioscorides*, and that it is with more Probability referr'd to his *Leucacantha*, or white Thorn. "The Carlina, says *Pontedera*, is an Herb much valued by Physicians. The Root has an aromatic Taste, mix'd with some Sweetness; and is very much celebrated for its Virtues against the Pestilence, Poisons, and malignant Fevers. It consists of volatile Parts, for which Reason the Root expels the Matter of Diseases by Sweat; and, on the same account, is said to give Relief in the Beginning of an Anasarca, and in hypochondriacal Disorders, and Weakness of the Stomach." *Philip Melanchthon*, being molested with Pains in the Hypochondria, is said, by *Bauhine*, to have reliev'd himself by the Use of this Herb. *Amatus Lusitanus*, on *Dioscorides*, commends the Head of the Carline-thistle, stript of its Prickles, and cleansed, and then preserved in Sugar or Honey, as a good Remedy for a cold Stomach. *Johannes Langius*, in his *Medicinalium Epistolarum Miscellanea*, informs us, that this is a Remedy much used by the Italians. *Ray*, from *Gesner*, tells us, that the small fleshy Heads of the Carline-thistle, when the Calix, Flowers, and Seeds, are cut off, afford a sweet and agreeable Food, when boil'd in Water, with Butter, Salt, and Pepper, in the same manner with Artichokes. *Boleus* informs us, that the Inhabitants of Savoy and Piedmont take the young Heads of the Carline-thistle, before the Flower appears, and pulling

pulling off the rougher Leaves, and the several small Laminæ shut up within them, cut the Bottoms into Slices, which they boil for Food like Turneps over a Fire, seasoning them with Salt, Butter, and Pepper. When thus prepared, as the same Author informs us, they are more delicate and grateful to the Taste than the Bottoms of Artichokes. *Valentini* informs us, that the Inhabitants of *Switzerland*, and the *Pyrenean* Mountains, use both the Roots and Heads for Food. The Root is kept in the Shops, and is accounted best when recent, entire, well dried, of a sweetish Taste, and of an agreeable and aromatic Smell. It may properly be exhibited in Cases where Nature is to be irritated, and requires a Stimulus to throw off an excrementitious Load. Hence 'tis obvious, that it must be proper for opening Obstructions, exciting a Diaphoresis, provoking the Menfes, promoting a Discharge of the Urine, and killing Worms, in consequence of its Bitterness. The common Method of exhibiting it is in Powder, from half a Scruple to half a Dram, in a Vehicle accommodated to the Nature of the Disease, or the Constitution of the Patient.

It is also prescrib'd in Decoctions and Infusions; and for Palsies, especially those of the Tongue, it is generally join'd to Pellitory of *Spain*. In the Plague, a Dram of it, reduced to Powder, is exhibited in Wine, both with a preservative and curative Intention. With this View it is by some given to Cattle, and especially to Hogs, because it is thought an effectual Preservative against pestilential Contagion. Whether, as an Amulet, it is beneficial in the Plague, is a Point we will not take upon us to determine. In *Upper Germany* the Country-people give this Root to their Dogs, in order to render them more fierce and voracious; because the Vessels are stimulated by it, the Circulation of the Humours accelerated, and the Animal render'd bolder. From this Circumstance the Observation of *Helmont* is probably to be accounted for, That the Carline-thistle banishes Sleep, and much more prevents preternatural Drowsiness. A Decoction of it, prepar'd with Vinegar, is recommended for washing Parts affected with the Itch, Ringworm, or any other cutaneous Foulness of difficult Cure. This same Decoction is also said to alleviate and relieve the Tooth-ach. If Experience confirms these external Uses, the Reason of the Thing may be deduced from the aromatic, acrid, resolvent, and aperient Nature of this Root. But 'tis somewhat more difficult to comprehend, how the Person who chews or carries this Root about with him, becomes stronger by that means; whereas those about him become weaker. *Valentini*, when speaking on this Subject, says, "If any one should happen to be weaken'd by this means, the Accident is to be ascrib'd to the Smell, which he could not endure. Those, on the contrary, who chew the Root, perceive themselves recruited and invigorated by its aromatic Quality, which rouses the animal Spirits." Besides, by its too strong fragrance, it excites, in many, troublesome Head-achs, Vertigos, and Nauseas, as *Boetere* has observed. Hence we understand the Reason why *Hoffman*, in his *Clavis Schroder*, affirms, that in Practice he has often observed, that Flesh-broth, in which it had been boil'd, excited a Vomiting in some People. 'Tis also owing to its Acrimony, that, when mix'd up with Flour, it kills Mice; but this *Hoffman* seems to have borrow'd from *Pliny*, who affirms the same Thing concerning the *Chamaeleon*.

2. *Carlina caulescens flore magno albente*, Cod. Med. 28. Tourn. Inst. 500. Boerh. Ind. A. 101. *Carlina caulescens magno flore*, C. B. Pin. 380. Elem. Bot. 401. Rupp. Flor. Jen. 172. Volck. Flor. Nor. 87. Buxb. 57. *Carlina caulifera*, J. B. 3. 64. Raii Hist. 1. 288. *Carlina caulescens*, Park. Theat. 968. *Carduus Xeranthemos, flore albo caulescens*, Hist. Oxon. 3. 162. CARLINE-THISTLE WITH A STALK.

In medicinal Virtues this agrees with the *Carlina Acanthos*; for which its Root is also substituted.

3. *Carlina sylvestris*, Offic. Raii Hist. 1. 288. *Carlina sylvestris major*, Ger. 997. Emac. 1159. Park. Theat. 969. Mer. Pin. 22. *Carlina sylvestris vulgaris*, Clus. Hist. 156. Tourn. Inst. 500. Elem. Bot. 401. Dill. Cat. Gissl. 167. Boerh. Ind. A. 101. *Carlina sylvestris quibusdam, aliis Atractylis*, J. B. 3. 81. Chab. 353. Raii Synop. 3. 175. Buxb. 58. *Carlina scandens*, Wedel. 175. *Cnicus sylvestris spinosior*, C. B. Pin. 378. *Heracantha*, Rupp. Flor. Jen. 172. *Carduus vulgaris*, Mere. Bot. 1. 27. Phyt. Brit. 23. *Carduus Xeranthemos vulgaris annuus*, Hist. Ox. 3. 162. COMMON WILD CARLINE-THISTLE.

The medicinal Virtues of this are said to be the same as those of the preceding. *Wedelius* recommends it for the Head-ach. Dale.

4. *Carlina sylvestris flore aureo perennis*, H. L. *Carduus xeranthemos, vulgaris, annuus*, M. H. 3. 162. *Cnicus sylvestris spinosior, flore aureo, perennis*, H. R. Par. 54. H. WILD PERENNIAL CARLINE-THISTLE, WITH A GOLDEN FLOWER.

5. *Carlina sylvestris minor, Hispanica*, Clus. H. 157. *Acarua flore luteo, patulo*, C. B. P. 379. *Carduus, Carlina*

minor sylvestris Clusii, flore luteo, J. B. 3. 84. *Carduus xeranthemos, flore luteo, patulo, Hispanicus, perennis*, M. H. 3. 162. H. LESSER WILD SPANISH CARLINE-THISTLE.

6. *Carlina flore purpureo-rubente, patulo*, T. 500. *Carlina, annua, purpurea, Monspeliensium*, Bot. Monsp. *Acarua, flore purpureo-rubente, patulo*, C. B. P. 379. *Carduus xeranthemos, flore purpureo-rubente, patulo*, M. H. 3. 162. *Acanthoides, parva, Apula*, Col. 1. 29. a. b. H.

The seventh Species of *Carlina*, taken notice of by *Boerhaave*, is the *Carlina patula atractylidis folio & facie*; but this has been already mention'd as one of the Species of *CARDUUS*.

CARMEN, ἔρκος, ἐρκασί. Properly a Verse; but, in superstitious Medicine, the same as *Incantatio*; that is, an Incantment or Charm, which was usually perform'd by pronouncing certain Verses. See AMULETUM.

CARMES (*Eau de*). The Carmelite-water, famous in *France*, and now in most Parts of *Europe*, for its extraordinary cordial Virtues. It is said to be extremely reviving, to be good in all sort of Fits, Apoplexies not excepted, and to relieve in the Gout, when it attacks the Stomach.

The Carmelites at *Paris*, who make a considerable Advantage by vending this Water, have endeavour'd to keep the Preparation of it a Secret. But I am pretty well inform'd, that the following Receipt for it is the genuine Prescription, by which these Religious make it.

EAU DES CARMES, or MAGISTERIAL WATER of BAUM.

Take of the fresh Leaves of Baum, four Ounces; of the fresh external Rind of Lemons, two Ounces; of Nutmegs, and Coriander-seeds, each an Ounce; of aromatic Cloves, Cinnamon, and the Root of *Bohemian Angelica*, each half an Ounce. Bruise the Leaves, and pound the other Ingredients, and put them into a Glass Cucurbit; then pour upon them a Quart of Brandy: Stop the Mouth of the Cucurbit, and leave them to digest two or three Days in a warm Place; then add a Pint of the best simple Baum-water; shake them together; fix a Head to the Cucurbit, and to that a Receiver: Then distil in *Balneo Mariae*, with a Heat sufficient to make one Drop follow another, which continue till the Ingredients in the Cucurbit remain almost dry. When the Vessels are cold, take the Water from the Receiver, and preserve it in Bottles well stop'd.

CARMIN. A Drops or Powder of a very beautiful deep-red Colour; separated from Cochineal by means of a Water, in which are infused *Chauan* and *Autour*. (See the Words.)

The Cochineal used in that Operation is a wild Sort, which is found on the Fig-trees of *India*, naturally produced, without being brought thither; but this Cochineal, which is thus spontaneously produced, is much inferior to the other, and sells at a much lower Price. *Carmin* ought to be an impalpable Powder, and deeply colour'd.

It is used for Painting in Miniature, and colouring of Draperies red, in Pieces of Value. *Lemery des Drogues*. See COCHINILLA.

CARMINANTIA, or CARMINATIVA. Carminative Medicines.

Quincy says, that these have a Place among the nervous Simples, by reason the nervous Parts are frequently under great Disorders from Flatulences, or Wind pent up; and, therefore, what dissipates and expels such Vapours, must be reckon'd of great Service to those Parts.

A great many seem to be Strangers to this Term, as it does not appear to carry in it any thing expressive of the medicinal Efficacies of those Simples which pass under its Denomination. This Term had certainly its Rise as thus apply'd, when Medicine was too much in the Hands of those Jugglers, who, for want of a true Knowledge in their Profession, brought Religion into their Party; and what, thro' their Ignorance, they were not able to do by rational Prescription, and the Use of proper Medicines, they pretended to effect by Invocation, and their Interest with Heaven. Which Cant being generally, for the Surprise-sake, couch'd in some short Verses, the Word *Carmen*, which signifies a Verse, was made also to mean an Incantment; which, as it was a good Cover for their Ignorance as well as their Knavery, was frequently made use of to satisfy the People of the Operation of a Medicine they could not account for. And as those Medicines, now under this Name, are of some quick Efficacy, and the Consequences thereof, in many Instances, very great and surprizing; the most violent Pains, which sometimes arise from pent-up Wind, immediately ceasing upon its Dispersion; for these Reasons, I say, such Medicines as give Relief in this Case are more particularly term'd Carminatives, as if they cured by Incantment; the Complaint removed by them being so sudden, that the ordinary

nary Means of the Operation of a natural Cause are not easily imagin'd to take place so soon.

But, howsoever this Term came into the Profession, its common Use has sufficiently determin'd its Meaning; so that by it every one understands such Things as conduce to expel Wind. How they do so, may be conceived, when we consider, that all the Parts of the Body are perspirable. *Sanctorius*, in his *Medicina Statica*, determines all we call Wind in the Bowels, to be such perspirable Matter as makes its Escape thro' the Coats of the Stomach and Intestines. Between the several Membranes likewise of the Muscular Parts may such Matter break out, and lodge for some time. Now whatsoever will rarefy and render thinner such Collections of Vapours, must conduce to their utter Discharge out of the Body, and consequently remove those Uneasinesses which arise from their Detention. And as all those Things in Medicine, which pass under this Denomination, are warm, and consist of very light subtile Parts, it is easy to conceive how a Mixture of such Particles may agitate and rarefy those Flatulencies, so as to facilitate their Expulsion; and especially when we consider, what a Help to promote this End those grateful Sensations may be, which such Medicines give to the Fibres; which cannot but invigorate their Tonic Undulations so much, that by degrees the obstructed Wind is dislodged, and at last quite expel'd. But if the Obstruction is not great, as it seldom is in the Bowels, by reason of the large Vent both upwards and downwards, the Rarefaction of the Wind, upon taking such a Medicine, is often so sudden, and likewise its Discharge, that it goes off like the Explosion of Gunpowder.

All the Things under this Class, being warm and discussive, are much used in the Compositions of Cathartics, of the rougher Sort especially; for the Irritation, occasion'd by those, would be scarce tolerable without the Mitigation of such grateful Ingredients. Many likewise, of this Sort, are in the Compositions of discussive Topics, as they warm, rarefy, and attenuate the obstructed Humours. *Quincy*.

The Medicines of the Carminative Kind are such as are calculated to dispel Flatulencies of the Primæ Viæ, Stomach, and Intestines, and remove the Pains arising from them: For this Reason they are also call'd *Flatus discutientia*, or Medicines capable of dispelling Flatulencies; and such is their Nature, that they are able to remove Spasms in the above-mentioned Parts. For this Reason, among the *Carminatives*, we may justly reckon *Antispasmodics*, of which those are always to be exhibited, which are most directly opposite to the known Cause of any given Disorder. Thus, for Instance, in order to correct a known acrid Acid, an Alkali must be prescribed; but to illustrate the thing by a particular Instance, after taking a Dose of Arsenic, Oil of Tartar per Deliquium is, in consequence of its directly opposite Nature, of all other Medicines the most proper. When the Disorder proceeds from a cold mucous Cause, or from a dull inactive Phlegm, the Patient can only expect Relief from heating Medicines, such as Mint, Chamomile, Wormwood, Orange-peel, Juniper-berries, the Four greater and smaller hot Seeds, the distil'd Waters and Oils of these, and other Aromatics, spirituous Liquors, all Balsamics, and, in a Word, all hot Stomachics, generally comprehended under the common Name *Carminatives*. Thus *Forestus*, *Lib. 18. Obs. Med. 39.* gives us an Account of a Man of a weak Stomach, who, in the Autumn, happening to indulge himself in the Use of flatulent Aliments, and drinking Must immediately after, was seiz'd with an intolerable Pain of the Stomach, together with an externally apparent Inflation of it. This Disorder was, however, remov'd, by the Patient's drinking Ale, in which common and *Roman* Chamomile, with an Addition of a few Anise and Canary Seeds, were boil'd.

Sylvius, by way of Specimen, recommends to young Practitioners the following Mixture against Flatulencies:

Take of the Waters of Mint and Fennel, each two Ounces; of rectified Spirit of Wine, or of the Aqua Vitæ of *Matthiæ*, or of the carminative Spirit of *Sylvius*, one Ounce; of the best Spirit of Nitre, twenty Drops; of Laudanum Opiatum, three Grains; of the distil'd Oil of Mace, six Drops; of the Syrup of Mint, an Ounce and an half: Mix all together.

Let a Spoonful of this Mixture be given at a time, and repeated as often as the Violence of the Pains and Tensions requires.

Ettmüller recommends the carminative Water of *Managetta* corrected, which is prepared of several aromatic Vegetables sprinkled with Spirit of Nitre, and distil'd with Wine, or the Spirit of Wine. But such Medicines are not proper for those whose Flatulencies proceed from too large a Quantity of Blood distending the Vessels, from a Plethora, or hot and acrid Substances used in Food. *Boerhaave's Chym. Vol. 2.* and Observations on Process 23. *Sylvius* judiciously observes, that Aromatics, and volatile Salts of every Kind, which are generally prescribed against Flatulencies, often prove prejudicial to the

VOL. II.

Patients, because by their means the violent Heat of the Body is augmented; and he thinks, that for dispelling Flatulencies no Medicine is comparable to the Spirit of Nitre, whether simple, or that distinguish'd by the Epithet *Dulcis*, since it not only incides the Matter of the Flatulencies, and glutinous Phlegm, but also corrects the excessive Acrimony of the Bile. *Boerhaave, in Chym. Vol. 2.* Observations on Process 135. among the Medicines calculated for dispelling Flatulencies, assigns the principal Place to the *Spiritus Nitri Dulcis*. Carminatives are principally intended for those who are afflicted with Flatulencies and Rumbings of the Intestines, such as those labouring under Disorders of the Spleen, hypochondriac and hysteric Patients, and Infants disorder'd by an acid Milk. The Effect of carminative Medicines is to dispel Flatulencies, either by Eructations, or by a Discharge downwards; nor is it a Matter of any Moment, whether this Discharge is upwards or downwards, as *Demetrius* is represented to say in *Seneca, Epist. 91.* And, according to *Cicero, [9 Epist. ad Fam. 22.]* the Stoics affirm'd, that Discharges downwards were as decent as Eructations. But in polite Company this would not at present be thought consistent with good Manners. The *Arabians*, a People highly delicate with respect to their Ears and Noses, esteem'd it a Crime for a Man to break Wind in their Presence. *Memoires du Chevalier d'Arvieux.* 'Tis therefore obvious, that the Use of Carminatives ought to be confin'd to certain Times and Places, since there is no-where as yet publish'd such an Edict as *Claudius* the Roman Emperor intended to make, by which every one might freely break Wind at an Entertainment, when he found that the Life of a certain modest Man had been endanger'd by Retention. *Sueton. in Claud.* Hence knowing Physicians, being sufficiently apprised of the bad Consequences of retaining Flatulencies, have prescrib'd various Medicines of different Forms, for dispelling them. Some of these are intended for internal, and others for external Use; but most of them consist of hot Ingredients, as being opposite to the cold and pituitous Viscidity which produces Flatulencies.

CARMOT. The Matter of which the Philosophers Stone consists. *Castellus.*

CARNABADIUM, καρναβάδιον, καρναβάδι, in *Myrsus*, is the same as *Cuminum Æthiopicum*, as he himself explains it, *Antidot. 429.* *Simeon Sethi*, and some of the more modern Greeks, as *Fuchs* observes, call *Carnabadium*, *Caruam*; whence the Latin Copies of *Myrsus*, instead of *Carnabadium*, read *Caruam*. They are mistaken then who expound *Carnabadium* by *Doronicum*.

CARNEOLUS LAPIS, Sardus, Sarda, Carneolus, Offic. *Sardus, Sarda, Geoff. Prælect. 78.* *Sardius Lapis*, Schrod. 331. *Sardius Lapis, sive Carneolus*, Aldrov. Mus. Metall. 923. *Sardius, sive Carneolus*, Boet. 230. *Sarda*, Laet. 60. *Kentm. 48.* *Carneolus, vel potius Carneolus*, Worm. 92. *Charlt. Foss. 35.* *Carniolus*, Schw. 371. *Carneolus, Sardius Lapis, Sardonyx*, Mont. Exot. 14. *Lapis Sarda aut Corniola, sanguinis diluti coloris*, Cup. Hort. Cuth. Supp. 2. 50. **THE CORNELIAN.**

It is a precious Stone, half-transparent, and like the Washings of Flesh, or bloody Flesh; it is found in *Sardinia*.

The Powder is prescrib'd to be drank in all manner of Hemorrhages; being worn, it is said to exhilarate the Heart, expel Fear, confer Boldness, avert Fascinations, defend the Body against all manner of Poisons, and, by a peculiar Property, to stop Bleeding in any Part of the Body; ty'd about the Belly, it prevents Miscarriage. *Dale from Schröder.*

CARNICULA. A Word used by *Fallopianus, Expos. de Offib.* instead of *Caruncula*, to signify in particular the Flesh which surrounds the Teeth, and is called the Glue of the Teeth. *Castellus.*

CARNIFEX. The spagiric Vulcan, or Fire, in the Affair of the Philosophers Stone. *Castellus.*

CARNIFORMIS Abscessus. An Abscess, with a harden'd Orifice, and of a firm Substance, or hard Consistence, like a Shell, not much elevated into a Tumor, but broad and expanded, with Membranes, Fibres, and Capillaries, usually interspersed. It generally rises where the Muscles apply themselves to the Joints. *Castellus from Severinus.*

CARNIVORUS, σαρκοφάγος. Flesh-devouring, an Epithet of the *ASSIUS LAPIS*, which see.

Animals, whose Food is Flesh, are call'd carnivorous, to distinguish them from those which eat Vegetables, and are call'd graminivorous.

CARNOSA Cutis. The same, according to *Castellus*, as **PANNICULUS CARNOSUS.**

CARO, σὰρξ, κρέας, Flesh. The common Signification of this Word is too well known to require Explication: It is sufficient to observe, in this Place, that what Anatomists mean by *Caro*, or Flesh, is only the red Part, or Belly of a Muscle.

CARO, in Botany, is the Pulp of a Fruit.

CAROB, *Siliqua dulcis*, Caroba, Carantia, Offic. Rand. Ind. 84. *Siliqua*, Mont. Ind. 19. Schrod. 4. 158. Chab. 89. *Siliqua edulis*, C. B. Pin. 402. *Jons. Dendr. 381.* *Tourn. Inst. 578.* *Elem. Bot. 449.* *Boerh. Ind. A. 2. 38.* *Siliqua dulcis,*

dulcis, Commel. Plant. Ufu. 79. Mill. Cat. 148. *Siliqua dulcis*, five *vulgatior*, THE ORDINARY SWEET BEAN, OR CAROB-TREE, Park. Theat. 236. *Siliqua Arbor five Carantia*, J. B. 1. 413. Raii Hist. 2. 1718. *Ceratia*, *siliqua five Ceratonia*, Ger. 1241. Emac. 1429. *Ceratia*, five *Siliqua dulcis* & *edulis*, Pluk. Almag. 97. *Ceratonia*, Herm. Cat. Hort. Lugd. Bat. 135. THE CAROB-TREE. Dale.

It grows in Sicily, and the Kingdom of Naples; the Fruit is used, tho' but seldom; it is drying and astringent; and is principally used in hot Disorders of the Stomach, and in Coughs. Dale, *ibid*.

It is a tall-spreading Tree; the Roots, which are incurvated like a Horn, have procur'd it, among the Greeks, the Name of *κεράτιον*, and *κεράλονία*, Words derived from *κέρας*, a Horn. The very Shell of the Pods, as Pliny tells us, is eaten, being of a sweet Taste like Honey. Eaten green, as Dioscorides, and from him Pliny, affirm, they disturb the Stomach, and loosen the Belly; but dry'd, they bind the Belly, are more friendly to the Stomach, and provoke Urine. Though all who have written of these Fruits, says J. Bauhine, say they bind the Belly, yet we at Venice, where they are sold in great Plenty, experience the contrary; for they not only excite a Nausea, but purge by Stool, like Pulp of Cassia, so that the Stomach loaths them afterwards; though I do not deny but they may agree well enough with those who are used to them. The Egyptians, according to Alpinus, extract a very sweet Sort of Honey out of the Pods, which the Arabians use instead of Sugar. They make very frequent Use of this Honey in Clysters; and some prescribe it to be taken at the Mouth, in order to loosen the Belly, for which Purpose it is as effectual as Pulp of Cassia; they use it also both inwardly and outwardly, for Inflammations of the Kidneys. The Pod eaten is an excellent Remedy, according to Ettmuller, in the burning Heat and Pain of the Stomach.

Siliqua purgatrix, C. B. *Caroba*, five *Siliqua ex Guinea purgatrix*, Park. Pona. Ital.

This grows to a great Tree in its native Soil, Guinea; and, in the manner of its Growth, differs from the preceding; the Pod is short, thick, and incurvated; and, as Pona says, something like the Anacardium, called *Cajous*, three Inches long, and of a brown Colour, like the common Carob, but of a more acrid Taste, and almost burning the Throat.

Siliqua Africana, fructu minore. The Pod of this is two or three times smaller than that of the common Carob, and has nothing else remarkable. Raii Hist.

CARCENUM, *καρκενον*, is supposed to be a Latin Word, and used by the later Greeks, to signify what the Antients called *σιγατον*, (*Siræum*) and *ἡψημα* (*Hepsema*). It is made use of by Palladius, Lib. 11. Cap. 18. where speaking of the Preparation of *Desfrutum Carænum*, and *Sapa* from Must, he says, that *Desfrutum* is so called *a deservendo*, because it is made of Must, reduced by a strong Despumation, to a convenient Thickness. *Carænum* is Must, boiled to the Consumption of one Third; and *Sapa* the same, boiled to the Consumption of two Thirds. Marcellus Empiricus, Cap. 26. mentions *Carænum* among Remedies for the Stone, and Diseases of the Kidneys; and Myrepsus uses the Word often, and particularly in the Antidote of Adrian, Antidot. Cap. 5. which, for those who are molested with the Sciatica, or Distempers of the Kidneys, he prescribes to be taken in *Carænum*.

CAROLI. A Term in some Authors, signifying venereal Pustules on the Pudendum Virile, otherwise called *Caries Pudendorum* or *Chancres*.

CAROS, *καρος*, is defin'd by Galen, *Com. ad Aph. 5. Lib. 5.* ἡ παύσις τῆς αἰσθητικῆς ἀνατομίας καὶ αἰσθητικῆς, "a sudden Deprivation of Sense and Motion, affecting the whole Body." Hippocrates often expresses this Affection by *ἀσυνία* for, as Galen assures us, in the foremention'd Place, it is customary with him to call τῶν ἀσυνίων καὶ ἀσυνίων ἀσυνία, "those who were any way affected with a *Caros*, *Aphoni*" (see *APHONIA*). The same Author, Lib. 4. Cap. 2. *de Locis affectis*, tells us, that a *Caros* is a Privation of Sense and Motion, the Faculty of Respiration being not at all injur'd; and that it is caused by an Affection of the fore Part of the Brain only, the middle Ventricle of the Brain also suffering by Consent of Parts, so as to disturb the Actions of the rational Faculty. But if this *Caros*, or Sopor, oppresses Respiration to so violent a Degree, as that the Patient cannot breathe without great Efforts, as those who snore under a deep Sleep, it is called an *Apoplexy*, the Solution of which is generally succeeded by a Paraplegy; but a *Caros* is usually follow'd by a good State of Health. Again, in his *Comment. 2. in Prorrh. he hints*, that *καρος* is sometimes taken for a heavy and profound Sleep, calling it *βαθὺ καὶ διατεταμένον ὕπνον*, "a deep Sleep, from which it is difficult to be roused;" which signifies that the Brain is oppressed with too great a Quantity of benign Humour, which is not prejudicial on account of its Quality, but excites a profound and invincible Sleep, and such as usually seizes on those who are drunk with Wine. A *Caros* of this Nature he acknowledges to be sometimes beneficial, and that such a pro-

found Sleep has been of great Service, where the Patient has wanted Sleep for three or four Days together. To Infants also such a Sleep, which has continued a whole Day, and even two Days together, as he himself says he has known it happen, has been of great Benefit. There is, besides this, a *καρος νοσώδης*, "a *Caros*, which is a Disease," and always hurtful; and this happens when the Brain abounds with a vitiated cold Humour, or is replete with Phlegm, by which means Sensation is destroy'd. This *Caros* little differs from a Lethargy, but resembles a *Coma* or *Cataphora*, and is called a *δυσδιέγερσις καὶ ἀδύναμις*, "a State out of which it is difficult to be roused," as Galen, in the Place before quoted, informs us; for, says he, ὅταν ὑπὸ ἐλέγματος ὁ ἐγκέφαλος ὑγραθῇ καὶ ψυχθῇ, &c. "When the Brain has been moisten'd and refrigerated with Phlegm, and so disposed to lethargic Affections, there happens a *Coma*, which, if you please, you may call a *Caros*. But some call it *Carus*, when the Patient lies for some time depriv'd of Sense and Motion, tho' you prick or strike him, or call him with a loud Voice, as it happens when a Person has received a violent Blow on the Temporal Muscles. We often meet with this Symptom also in feverish Disorders, [*καὶ ἀτὰς πυρετώδους νόσου ἐν ἐπισημασίαις*] in which the Patients are insensible to Prickings, Blows, or vehement Noises." The same Author, *Meth. Med. Lib. 13.* distinguishes *καταφύσεις βαθείας*, "violent Inclinations to a profound Sleep," which are owing to a cold Humour not putrefy'd, and without a Fever, into an *Apoplexy*, *Caros*, and *Catoche*; for such as are attended with a Putrefaction of the cold Humour, and a Fever, produce, he says, a Lethargy. *Caelius Aurelianus, Cap. 5. Lib. 3. Acut.* calls *καρος*, *Gravatio*; and Pliny, *Cap. 13. Lib. 25.* calls it *Gravedo*: For as Dioscorides, *Cap. 76. Lib. 4.* says, of Mandrake-apples, that being eaten or smelled to, they were *καρσινά*, "disposed to a *Caros*;" so Pliny says of them, *Gravedinem etiam afferunt olfactu*. Erotian, on Hippocrates, expounds τὸ *καρῶδες*, by *καρῆβαρία*, ἢ *καρῶτικόν*, "a *Gravedo*, or Heaviness of the Head, or what disposes to a *Caros* or Sopor;" where he seems to have an Eye to that Passage in the *Prorrh. Lib. 1. 63.* τὸ *καρῶδες ἀεὶ γὰρ παύλαχρ' ἁπλόν*, "it is to be consider'd, whether a Disposition to a profound Sleep or Sopor is to be constantly reckon'd a bad Sign." In *Coac. 2.* μὲν *καρὸν ἀσυνία*, &c. "Loss of Voice, attended with a *Caros*, or deep Sopor, threaten Convulsions." In *Lib. 7. Epid.* *καρῶδες ὀφθαλμοὶ*, are Eyes affected with a Sopor, or *Caros*; and *ἀτενίζοντες κεκαρωμένοι ὀφθαλμοί*, signify Eyes rigid, or fixed in the Head, and affected with a *Caros*.

CAROSIS, *κάρωσις*, the same as CAROS in *Moschion. de Mulierum Morbis*.

CAROTA. The Carrot. See DAUCUS.

CAROTICUS, an Adjective from *Caros*, soporous, sleepy.

CAROTIDES, *καρωτίδες*, from *καρὸν*, the Head. The Carotid Arteries, which convey Blood to the Head, mark'd 5. 5. in Tab. 5. See ARTERIA.

CAROUN. The *Carum*, Caraway, is call'd thus. See CARUM.

CARPASUS, *κάρπασος*. An Herb taken notice of by Dioscorides, Pliny, Galen, and Paulus Aegineta, the Juice of which is call'd *Opocarpason*, or *Opacarpathon*, and is esteem'd very poisonous. Paulus, L. 5. C. 153. says, it induces Sleep, and sudden Suffocation. The Antidotes, he says, are the same as those against Hemlock. I don't find that the modern Botanists know what Plant is here meant. It was very like Myrrh, so as to deceive some who took the *Carpasus* instead of it, and by that means were poison'd.

CARPENTARIA. A Name for the PRUNELLA, Self-heal, which see. Gerard.

Blancard says it is the HERBA JUDAICA, which is Ray's seventh Species of the SIDERITIS, Ironwort.

Lemery says it is the MILLEFOLIUM, Yarrow.

CARPESIUM, *καρπῆσιον*. An Aromatic mentioned frequently by the Antients, and said to be endu'd with the Virtues of Cinnamon. The Arabians mistake it for Cubebs. But it is not known what it was.

CARPHALEON, *καρφαλίον*, dry. Hipp.

CARPHUS, *κάρφος*. This the Latin Authors translate Festuca. It signifies, in Hippocrates, a Straw, or Mote, or any very small Substance; who pronounces it a bad Symptom, and a Sign of a Phrensy, when, in acute Distempers, the Patients pick these small Substances out of the Bed-clothes, or from the Walls near the Bed. It also signifies a small Pustule; for the Cure of which Aetius, *Tetrabibl. 1.* recommends rubbing them with the dry'd Seeds of Mercury.

CARPIA. Lint. Blancard.

CARPINUS. The Horn-bean-tree. Gerard.

CARPIO, Offic. vel *Carpo*, Schrod. 5. 326. Cyprinus, Aldrov. de Pisc. 635. Bellon. de Aquat. 273. Gesn. de Aquat. 209. Charlt. de Pisc. 43. Jonst. de Pisc. 111. Mer. Pin. 190. Raii Ichth. 245. Ejusd. Synop. Pisc. 115. Rondel. de Pisc. 2. 150. Salv. de Aquat. 91. *Carpa*, Calliod. THE CARP.

See the Article ALIMENTA.

You ought to choose that Carp which is large, fat, well fed, not too young, and that has been caught in a River, which is better than that which lives in Ponds.

Carp is easily digested, affords pretty good Nourishment, and is good Food.

Some Authors pretend, that this Fish hath many heavy, viscous, and gross Juices in it; however, 'tis very commonly eat, and no bad Effects are produced by it.

It contains much Oil, Phlegm, and volatile Salt.

It agrees at all times with any Age and Constitution.

The Carp is a fresh-water Fish so well known, as not to need a Description. You meet with it in Rivers, Ponds, and Marshes. It does not live in the Sea, as *Pliny* says, *Lib. 9. Cap. 16*. When they are in a Place where they can get Food enough, they grow to a great Bigness. Some Authors say, they had seen Carps in some Lakes, that were ten Feet long. They multiply apace, and are found almost every-where in great Numbers. They feed upon Herbs, Mud, and Slime, which, perhaps, has made some say they are not good Food. They live a long time, which is proved by those great and large Carps, which are often found in Town-ditches, and kept there for a Rarity. *Gesner* assures us, that he knew a Man of good Reputation, who affirmed to him, he had seen one of an hundred Years old.

Rondeletius says, that Carps sometimes are produced of themselves, without the Help of Generation; and that, it seems, from the Corruption of some Matter: And for the proving of his Opinion, he assures us, that he had seen Carps in the Hollows of Mountains, that received no other than Rain-water: However, with this Author's Leave, it is impossible, that this Fish, or any other, can be produced in the Way he talks of, without a Male and Female Carp. As for the Matter of Fact he cites, I shall not regard it; but have a great deal of Reason to suspect what he says in this Particular.

The Carp being naturally soft enough, and full of phlegmatic Moisture, you must not pitch upon that which is young; for as it grows older, so proportionably does its overabounding Moisture disappear; and then it becomes firmer, better tasted, and more wholesome; and those Carps which are old enough, and of a yellowish Colour, are much esteemed. We also prefer the Male before the Female, because 'tis firmer, and better tasted. Lastly, the Time of the Year wherein they pretend the Carp is best, is *March, May, and June*.

They find in the Head of a Carp a stony Bone, which is looked upon to be good to provoke Urine, to diminish the Stone in the Kidneys and Bladder, to stop Loosenesses, and to waste sharp and acid Humours.

The Gall of a Carp clears the Eye-sight.

The Head of a Carp is the best Part of all, especially upon account of the Tongue, which has a most delicious Taste. *Lemery on Foods*.

CARPOBALSAMUM, from καρπός, Fruit, and βάλσαμον, Balsam. The Fruit of the Balsam-tree. See BALSAMUM.

In *Egypt*, according to *Prosper Alpinus*, the Carpobalsamum is used in all the Intentions for which the Balsam itself is apply'd, but is not so efficacious. The Dose is two Drams, with a Decoction of Spikenard. It is also used in Suffumigations for uterine Disorders arising from a cold Cause.

The only Use the Europeans make of the Carpobalsamum is in the Venice-treacle, and Mithridate: And this is not a great deal; for Cubebs, or Juniper-berries, are generally substituted for it.

CARPOS, καρπός. A Seed, or Fruit.

CARPUS, καρπός. The Wrist. See BRACHIUM.

CARSIA. *Johnson* explains this by *Aqua salis Panis*.

CARTHAMUS. Bastard-saffron.

The Characters are;

This Plant agrees with the Thistle in most of its Characters; but the Seeds of this are always destitute of Down. *Miller's Dictionary*.

Boerhaave enumerates but three Species of this Plant.

1. CARTHAMUS, *Cnicus*, *Offic.* *Carthamus sive Cnicus*, J. B. 3. 79. Ger. 1006. Emac. 1169. Raii Hist. 1. 302. Synop. 88. *Carthamus Officinarum, flore croceo*, Tourn. Inst. 457. Boerh. Ind. A. 139. *Cnicus sativus, sive Carthamus Officinarum*, C. B. 378. Hist. Oxon. 3. 145. *Cnicus sive Carthamus sativus*, Park. 259. *Cnicus, Cneus, Carthamus*, Chab. 354. *Carduus sativus, Cnicus seu Carthamus dictus*, Pluk. Almag. 82. BASTARD-SAFFRON.

This is an annual Plant, having a small woody Root, which runs not very deep into the Earth. The lower Leaves are pretty broad, long, and round-pointed. The Stalk grows to be two or three Foot high, corner'd, and without Prickles, branching into several Divisions towards the Top, beset with lesser Leaves an Inch broad, and two Inches long, pointed, and having a few not very hard Prickles growing on them. The Flowers stand on the Ends of the Branches, consisting of round scaly Heads, having a few Spinulæ growing on them, out of the Middle of which spring Thrums of deep-yellow or Saffron-colour'd fistular Flowers, succeeded by white, corner'd,

longish Seed, narrow at one End. It is sown in Fields and Gardens, flowering in *July*. The Flower is call'd Safflower, and is much used in dying Silk. The Seed only is used in the Shops.

It is accounted a pretty strong Cathartic, evacuating tough viscid Phlegm both upwards and downwards; and, by that means, is said to clear the Lungs, and help the Phthisic. It is likewise serviceable against the Jaundice; though grown pretty much out of Use. *Miller's Bot. Off.*

The Seeds of the Carthamus, or Bastard-saffron, are apply'd to medicinal Uses, and are esteem'd best when thick, perfectly ripe, recent, but thoroughly dry'd; but since some Impostors have the Art of preparing the Seeds of Melons and Cucumbers in such a manner as to resemble the excorticated Seeds of Carthamus, for which they vend them, we must observe, that the genuine Seeds of the Carthamus are round at one End, sharp at the other, and do not appear so white as the Seeds of Melons and Cucumbers. But, according to *Pauli*, the Goodness of these Seeds, before they are decorticated for medicinal Purposes, ought carefully to be examined into: What subsides, says he, in Water is good, but what swims is to be thrown away as useless. With respect to its Virtues and Uses, *Dioscorides* acquaints us with the following Particulars: The express'd Juice of the tritured Seeds, exhibited in Conjunction with Honey and Water, or the Broth of a Fowl, purges the Intestines, but proves prejudicial to the Stomach. Of this Juice, with an Addition of Almonds, Nitre, Anise, and boil'd Honey, are prepar'd Cakes which render the Body soluble. These Cakes are to be divided into four Parts, as large as a Walnut, two or three of which are sufficient for a Dose, to be taken before Supper. The Proportion in which the Ingredients are mixed is as follows:

Of white Cnicus, a Pint; of blanch'd and excorticated Almonds, three Ounces; of Anise, one Pint; and of Nitre, one Dram; with the Pulps of thirty Figs. *Dioscorides, Lib. 4. Cap. 82*.

The Juice of these Seeds coagulates Milk, and gives it a stronger Virtue of purging the Intestines. According to *Gulielmus Pantinus*, in his *Comment. ad Celsum*, "Some coagulate Milk with the contus'd Seeds of Cnicus, and, having strain'd it off, add Salt or Sea-water to it: When thus prepared, it is an effectual Purge, and a pleasant Drink. But there is no Necessity for Salt when the Intention is only to scour the Intestines, or where the Body is previously stuffed with acrid and corrosive Humours. This Preparation of it is proper for old Men, Children, and People of lax Habits of Body: But in other Constitutions, and in more violent Disorders, a more drastic Preparation of it is required." *Hippoc. de Dieta, Lib. 2*. informs us, that the Cnicus is purgative. *Galen*, according to *Matthiol. ad Diosc.* affirms, that the Seeds of the Cnicus are only used for Purges. *Paulus Aegineta, Lib. 7. Cap. 4*. reckons them among the Hydragogues. *Sylvius* also does the same. *Baubine* informs us, that the Seeds, bruise'd, boil'd in the Broth of Flesh or Chiches, and drank, evacuate Phlegm, and tough and viscid Humours. *Ettmuller* tells us, that "It is proper in Cases where the Primæ Viæ are loaded with a thick and viscid Mucus; as also in Disorders of the Breast, in Asthmas, and Coughs produc'd by a thick and viscid Matter; for which Reason it is classed among the Medicines which evacuate Phlegm." These Seeds are found to be a drastic purgative Medicine, which, by reason of its acrid Quality, in Conjunction with its Viscidity, generally excites violent Gripes, with an Inflation of the Abdomen. For this Reason, when Physicians prescribe these Seeds, they generally obtund and correct their Force by an Addition of Salts or Aromatics, such as Nitre, common Salt, or Sal Gemmæ, Ginger, Anise-seeds, Cardamoms, or Cinnamon; for by these their Viscidity is dissolv'd, so that they adhere less forcibly to the Intestines than they would have otherwise done. Some, in preparing Decoctions for Clysters, in which these Seeds ought to be an Ingredient, wrap them up in a slender Linen or Muslin Cloth whilst the Decoction is preparing, lest, by their Viscidity, they should adhere to the Intestines, and immediately induce a Hypercatharsis, a Tenesmus, or other Disorders of a like Nature. When these Seeds are to be exhibited in Substance, the greatest Dose is three Drams; but this is not often practis'd, since, for the most part, they are exhibited in the Form of an Emulsion, which *Ettmuller* directs to be prepared in the following Manner:

Take of the Seeds of Carthamus, two Drams, or between three and four; with some gently aromatic Water, such as that of Fennel or Anise, or a Decoction of the Seeds of Fennel or Anise: Reduce them to the Form of an elegant purgative Emulsion, to which add one Dram of Cinnamon-water. Mix for one Dose.

This is an agreeable Draught, and powerfully evacuates the peccant Matter. Besides, with an Intention of relaxing, these seeds

Seeds are mixed with Decoctions and Infusions, from half an Ounce to six Drams, but very improperly. These Seeds are generally ordered in Clysters, when severe Purging and Revulsion from the Head are necessary in Diseases of the Head, a Carus, an Apoplexy, an Epilepsy, a Lethargy, and that in the Beginning of these Disorders. Others prepare an Extract from these Seeds, with a spirituous Menstruum, such as the spirituous Waters of Anise-seed or Orange-peel, or Spirit of Wine, or Spirit of Anise moderately rectify'd. The Dose of this Extract is from one Scruple to half a Dram, or a Dram, which proves a strong Purge. This Extract may also be exhibited in the Form of Pills. The Oil express'd from the Seeds proves purgative, when the Abdomen is anointed with it. From what has been said, I think it is sufficiently obvious, that, in Cases where these Seeds produce their intended Effects, they act by a resolvent purgative Quality; for which Reason they are recommended by Authors in the Dropsy, Jaundice, Gout, Cough, and for provoking the menstrual Discharges. *Sennertus*, in his *Institutiones Medicæ*, justly, therefore, observes, "That the Seeds of the Carthamus " evacuate Phlegm and Water, by Vomit and Stool; for this " Reason they are proper for Disorders of the Liver, Spleen, " and Breast, and beneficial in Dropsies, Colics, and Asthmas." The same is also observed by *Mesue, de Re Medica*. But what proves thus powerfully cathartic with Men, the Magpyes cheerfully eat without any Detriment; for which Reason *Auerroes* calls them *Semen de Papaga*, and the *Venetians* *Semen Papagalli*. Besides that, the Flowers prove an elegant Ornament to Gardens. *Baubine*, from *Tragus*, informs us, that the poor People use them bruised by way of Sauce; nor unelegantly, since they give a fine Saffron-colour to the Aliments, and render the Body soluble. One Dram of the Flowers proves purgative, and they are exhibited, in Conjunction with Marigold-leaves, in Disorders of the Menses, and the yellow Jaundice. Apothecaries prostitute these Flowers to the worst of Purposes, when they adulterate the Stamina of genuine Saffron with them, for the sake of augmenting the Weight. Hence this Plant is called Bastard-saffron. But the Fraud is discovered by the Smell, which is less aromatic than that of genuine Saffron. According to *Matthiolum*, some in Italy call it *Grocus Saracenicus*, because, in Country Villages, its Flower is generally used instead of Saffron.

2. *CARTHAMUS*; *Africanus*; *frutescens*; *folio Ilcis*; *flore aureo*. H. R. D.

3. *CHAMELEON NIGER*, Offic. Ger. quoad Descript. 997. Emac. 1160. Chab. 352. *Chameleon niger verus*, Park. 970. *Chameleon niger umbellatus*, *flore cœruleo hyacinthino*, C. B. 380. *Chameleon niger Dioscoridis Maranthæ*, J. B. 3. 63. Raii Hist. 1. 314. *Carthamus aculeatus*, *Carlina folio*, *flore multiplici veluti umbellato*, Tourn. Coroll. 33. *Carduus Chameleon dictus*, *capitulis pluribus minoribus cœruleis*, *corymbatim dispositis*, Hist. Oxon. 3. 159. BLACK CHAMELEON.

It grows in Greece, and flowers in June. The Root is only used, which is oblong, thick, brownish externally, but white internally. It is of so acrimonious a Quality, that its Juice burns the Skin; but it is very efficacious in cleansing malignant Ulcers. Dale from Bellon. *Epist. ad Clusj*.

CARTILAGO.

A Cartilage is a whitish or pearl-colour'd Substance, which covers the Extremities of Bones join'd together by moveable Articulations, increases the Volume of some of them after the manner of Epiphyses, unites others very closely together, and has no immediate Adhesion or Connection with others.

The Substance of Cartilages is more tender, and less brittle, than that of Bones; but with Age they sometimes grow so hard, as to become perfectly bony. They are pliable and elastic, and so capable of restoring themselves after having been compressed, or bent to a certain Degree; but, when bent beyond that Degree, they break.

All that *Winflow* has said is comprehended in the short Definition which *Carolus Stephani* has given of them in his Anatomy. "A Cartilage," says he, "is a Part of the Body which truly " deserves the Name of simple or similar. It is harder than all " the other Parts, but softer than the Bones, white, smooth, " polish'd, and pliable or flexible. The Cohesion of its Parts " is different in different Cartilages; and no sensible Cavity, " Cell, or Bone, appears in any Part of its Substance, except " very small Passages for the Blood-vessels," &c.

The Cartilages of the Bones differ from each other in Size, Figure, Situation, and Use; and may all be rank'd under two general Heads, those which are closely united to Bones, and those which are not immediately connected with them.

The Cartilages united to Bones are of four Kinds. Some cover both Sides of the moveable Articulations, and are very smooth and slippery.

Some unite the Bones to each other, either so firmly as to allow no sensible Motion, as in the Symphysis of the Os Pubis, and still more in that by which the Epiphyses are join'd to the Bones; or in such a manner as to allow of different Motions, as in those by which the Bodies of the Vertebrae are connected.

The first grow easily hard, the others appear, in some measure, viscid, and retain their Flexibility.

Some increase the Size and Extent of Bones. Of these, again, some are articulated with other Bones, as the cartilaginous Portions of almost all the true Ribs; or with other Cartilages, as the Septum Narium: Others serve only for Borders, as those of the Basis of the Scapula, and of the Crista of the Os Ilium, the Supercilia of Cavities, and those of the spinal and transverse Processes of the Vertebrae.

Some, in fine, have a singular Form, as those of the Ears, and most of those of the Nose, in which last their Elasticity appears most sensibly.

The Cartilages belonging to the second general Class, or those not immediately joined to Bones, are, for the most part, plac'd in the moveable Joints, and may likewise be subdivided into several Kinds.

Some lie altogether loose, being join'd neither to the articulated Bones, nor to the Cartilages which cover them, but slide freely between them in different Directions; as those which are placed in the Articulation of the Tibia with the Os Femoris, in that of the lower Jaw with the Os Temporum, and in that of the Clavicle with the Sternum. Those between the Clavicle and Acromium, and between the first and second Vertebrae of the Neck, are of the same Kind.

Some are partly join'd to other Cartilages, and partly slide between the cartilaginous Extremities of the articulated Bones; as the Cartilage at the lower Extremity of the Radius.

We might likewise reckon among the Cartilages, tho' more improperly, several of the small Sefamoide Bones, which remain long cartilaginous, and also the cartilaginous Portions of Tendons, which do the same Office with Sefamoide Bones. *Winflow*.

There are likewise several Cartilages in the Body, which do not belong to the Bones, as those in and about the Larynx, and others which are either describ'd with the Parts to which they belong, or under the Articles of their particular Names.

In Zoology, cartilaginous Fish are such as have the Spine of their Back cartilaginous; as many of the flat Fish, and some others. See SELACHOS.

CARUI. Caraway. See CARUM.

CARUIFOLIA, J. B. C. B. is the *Carum Pratense* of Parkinson.

CARVINUM. *Johnson* explains this by *Lac quoddam*.

CARUM, Caraways.

The Characters are,

It hath winged Leaves, which are cut into small Segments, and are placed opposite on the Stalks, having no Foot-stalk: The Petals of the Flowers are bifid, and shaped like a Heart; the Seeds are long, slender, smooth, and furrow'd. *Miller's Dictionary*.

Boerhaave takes notice but of three Species of this.

1. *CARUM*, Offic. *Carum sive Carum*, Ger. 879. Emac. 1034. Raii Hist. 1. 446. Synop. 3. 213. Mer. Pin. 22. *Carum*, Rivin. Irr. Pent. Dill. Cat. Gisl. 64. Rupp. Flor. Jen. 227. *Carum vulgare*, Park. Theat. 910. *Carum sive Carui*, Mor. Umb. 24. Hist. Oxon. 3. 296. Hort. Lugd. Bat. 121. *Caros*, J. B. 3. 69. *Caros*, *Carus*, *Carum*, & *Carum*, Chab. 391. *Carui*, Tourn. Inst. 306. Elem. Bot. 256. Boerh. Ind. A. 59. *Cuminum pratense*, *Carui officinarum*, C. B. Pin. 158. CARAWAYS. Dale.

The Root of Caraways is pretty thick and large, sinking deep in the Ground, of a white Colour, and of a pleasant sweet Taste, prefer'd by many to Parsnips. The lower Leaves are large and winged, divided into a great many Sections, like the Leaves of Carrots; but finer, smoother, and little or nothing hairy. The Stalk grows to be two or three Foot high, striated and divided into several Branches, having finer Leaves at each Division, those towards the Top being near as fine as Fennel. The Flowers are small and white, of five Leaves each: They grow in Umbels, and are succeeded by long, brown, striated Seed, two sticking together, as in other umbelliferous Plants, of a warm aromatic pleasant Taste. They grow wild in several Places of Lincoln and York Shires, according to Mr. Ray. I have sometimes found it in the Fields about London, but suspect it to arise from Seed accidentally scattered, which is the only Part used, and comes from Germany.

The Seed is one of the greater hot Seeds; it is stomachic and carminative, expels Wind, and is serviceable against the Colic and Weakness of the Stomach, helps Digestion, is good for Dizziness in the Head, Weakness of Sight, to provoke Urine, and increase Milk in Nurses.

Official Preparations are, the Seed candy'd with Sugar, and an Oil distil'd from the Seed. *Miller's Bot. Off.*

The Seed only of this Plant is in Use, tho' some use the Root in carminative Pisans and Glysters. The Seed is stomachic, diuretic, and very proper to dissolve the glutinous Matters which cause the Colic. Caraway-seeds are put in Bread to avoid this Disease. Take an hot Loaf, sprinkled with bruised Caraway-seeds, dipt in good Brandy, and apply it to the lower

Belly

Belly for that Disease. Candy'd Caraway-seeds dispel the Wind. The chymical Oil is very acrid and penetrating; five or six Drops of it are prescribed in Oil of sweet Almonds; some Drops of it in Spirit of Wine, imbibed by Cotton, and put in the Ears, may be used in the Case of Deafness, instead of Syringing. *Martyn's Tournefort.*

2. *Carui*; *semine majore*. *Vaill. 2.*

3. *Carui*; *Alpinum*. *C. B. P. 158. Prodr. 84. descr. 2.*

CARUNCULA. A Diminutive from *Caro*, Flesh. A Caruncle, or small Piece of Flesh, or, at least, what has the Appearance of it. Thus there are the *Carunculae Lacrymales* in the Corners of the Eyes. See *OCULUS*. The *Carunculae Myrtiformes*, which are small Caruncles at the Entrance into the Vagina, said to be formed by the Rupture of the Hymen. The *Carunculae Papillares*, in the Kidneys: And a Caruncle in the Urethra, at the Orifice which opens from the Vesiculae Seminales; besides many others. The Uvula is also sometimes call'd *Caruncula*.

Morbid Excrescences of Flesh are also call'd Caruncles; and small Portions of a fleshy Substance, which are sometimes discharged in a Dysentery by Stool, or, in Diseases of the urinary Passages, by Urine, are call'd Caruncles.

CARUS. See *CAROS*.

CARYA, *καρύα*. The Walnut-tree. *Theophrastus.*

CARYCHUS, *καρύχου*. An Ingredient in one of *Myrsinus's* Antidotes, *Cap. 295.* which *Fuchsius* confesses to be unknown to him.

CARYCIA, **CARYCE**, *καρυκία, καρύκη*. *Suidas, Erotian, and Galen*, informs us, that it was a costly sort of Food, or season'd Dish, invented by the *Lydians*, and prepared of Blood, with other Ingredients. *Varinus* supposes it was called *Caryce*, because it was of a black Colour, like that of *Carya*, or Walnuts boil'd. *Gorræus.*

CARYCOIDEA, *καρυκοειδέα*, from *καρύκη*, the preceding Word, and *εἶδος*, Resemblance, in *Hippocrates, Epid. Lib. 4.* is expounded, in *Galen's Exegesis, ὑφαιμα*, "somewhat resembling Blood." The Passage, in *Hippocrates*, is as follows: *Ἵσσια τὰ μέλανα κατ' ἀρχὰς διήει, ὑπὸ τρυγὰ, καρυκοειδέα* "Their Stools in the Beginning were black, somewhat feculent, resembling Caryce" (the Culinary Preparation before-mention'd). In the same Sense is **CARYCODE**, *καρυκάδην*, in *Aëtianus, Lib. 5. Meth.* to be taken, where he applies this Epithet to the Stools of those who have drank Bulls Blood.

CARYEDON CATAGMA, *καρυεδὸν κατάγμα*. A Species of Fracture, the same as **ALPHITEDON**, which see.

CARYITES, in *Dioscorides, Lib. 4. Cap. 165.* is a Name for the Female Tithymalus.

CARYOCES, **CARYOSSE**, Names given by the *Portuguese* to the Fruit of the *Guiney Palm-tree*. *Ray.*

CARYOCOSTINUM ELECTUARIUM.

Take of Cloves, white Costus, or Zedoary, Ginger, and Cumin-seeds, of each two Drams; of *Hermodytys*, clear'd of their Husks, and of *Diagrydium*, each half an Ounce; of the Honey of Roses, three times the Quantity of the Whole: Let them all be powder'd together, except the *Diagrydium*, and stirr'd into the Honey of Roses with a wooden Spatula; and, at last, put in the *Diagrydium* by itself, and make them into an Electuary. *S. A.*

This differs not from any preceding Dispensatory of the College, nor the *Augustan*, both which have it, unless in ordering Honey of Roses for common Honey, which is an Alteration of no great Consequence. *Zwelfer* gives this a great Commendation for purging away Choler, and breaking away the Obstructions of cachectic Constitutions; and it is an excellent Purge for strong People. It works very briskly, and fetches the Humours from the most remote Parts; and is therefore found of great Service in Rheumatisms, and arthritic Complaints. Its Warmth also, and Fitness to carry watery cold Humours, makes it very good in Dropsies, and such-like gross Habits. In apoplectic and paralytic Cases likewise, where the Fibres want to be stimulated, and shook with Briskness, this is a proper Medicine, if Purging be required; but it is too smart for weakly People. Its Dose is from one Dram to six Drams. There is in every half Ounce of this, of *Diagrydium* and *Hermodytys*, of each 15 Grains. *Quincy.*

CARYON, *καρύον*. A Nut. A Word apply'd to all such Fruit as inclose somewhat eatable within a hard Shell. *Plutarch, Sympos. 3. Quæst. 1.* writes, That the Antients called the Walnut *Caryon*, because it induces a Heaviness and Stupidity upon the Spirits, so as to affect even those who lie under it; and that the Disease *Caros* took its Name from this Tree, or the Tree from the Disease.

CARYON BASILICON, *five EUPHONICON, five PERSICON*, *καρύον βασιλικόν, ἢ Εὐφώνικόν, ἢ Περσικόν*. The Walnut.

CARYON HERACLEOTICON, *five PONTICON*, *καρύον Ἡρακλειωτικόν, ἢ Ποντικόν*. A small Nut, as a Filbert, or Haselnut, *VOL. II.*

so call'd because it was brought from *Heraclea*, in *Pontus*, into *Greece*.

CARYON LEPTON, *five LEPTOCARYON*, *καρύον λεπτόν, ἢ λεπτοκαρύον*, from *λεπτός*, small. The same with the preceding.

CARYOPHYLLATA, *Avens*, or Herb-bennet.

The Characters are,

It hath pennated or winged Leaves, somewhat like those of *Agrimony*. The Cup of the Flower consists of one Leaf, which is cut into ten Segments. The Flower consists of five Leaves, which spread open in form of a Rose: The Seeds are form'd into a globular Figure, each of which have a Tail to it. The Roots are perennial, and smell sweet. *Miller's Diet.*

Boerhaave mentions eight Species of this Plant.

1. **CARYOPHYLLATA**, *Offic. Ger. 842. AVENS*, or **HERB-BENNET**, *Emac. 994. Rali Hist. 1. 606. Synop. 3. 253. Mer. Pin. 22. Caryophyllata vulgaris, ORDINARY AVENS*, *Park. Theat. 136. C. B. Pin. 321. Dill. Cat. Giff. 97. Tourn. Inst. 294. Elem. Bot. 244. Boerh. Ind. A. 42. Hist. Oxon. 2. 430. Rupp. Flor. Jen. 86. Buxb. 58. Caryophyllata vulgaris, Herba Benedicta, Merc. Bot. 1. 27. Phyt. Brit. 23. Caryophyllata vulgaris flore parvo luteo, J. B. 3. 398. Caryophyllata; Janamunda, Chab. 172. AVENS. Dale.*

The Root of this Herb (which has its Name *Caryophyllata* from its smelling somewhat like *Caryophylli* Cloves) is slender, hard, and woody, full of small Fibres, of a reddish Colour, having a Smell of Cloves. The lower Leaves are made up of about seven Pinnæ, whereof the odd one at the End, and the two next it, are much the largest: They are hairy, as is likewise the Stalk, growing two Foot high, or sometimes more, beset with smaller Leaves, having two pretty large Ake or Wings growing close to the Stalk, and ending in three Pinnæ. The Flowers grow at the Tops of the Branches on long Footstalks, of five small yellow Leaves, with several brown Stamina in the Middle. These are succeeded by Clusters of little flat hairy Seed, each having a crooked Hook at the End, by which it easily adheres to any thing which comes in the Way. It grows in Woods, and by Hedge-sides; and flowers a great Part of the Summer.

The Roots only are used, which, being infused in Wine, give it a pleasant Smell and Taste, and render it more cordial and chearing to the Spirits. They ease Pain arising from Cold, or Wind in the Bowels. They are cephalic and alexipharmic; and, being manifestly of a binding Nature, are useful for all kinds of Fluxes and Hæmorrhages. *Miller's Bot. Off.*

The *Avens* is bitter, styptic, and gives a deep-red Colour to blue Paper. Its Root smells like Cloves. Its Salt resembles the Sal Ammoniac; but is very much loaded with Acid, and involved by a great deal of essential Oil and Earth. An Infusion of *Avens-roots* in Wine is stomachic, according to *Tragus*, and removes Obstructions of the Liver. This Wine is also very vulnerary and deterfive. The Extract has the same Virtues. It is prescrib'd in Rheumatisms. *Martyn's Tournefort.*

2. *Caryophyllata; Alpina; lutea. C. B. P. 322. Caryophyllata, Alpina, lutea, major. M. H. 2. 435. Caryophyllata, montana, flore luteo, magno. J. B. 2. 398. Caryophyllata, montana. Dod. p. 137. Caryophyllata, montana, 2, & Caryophyllata, Alpina, aureo flore. Clus. H. 103.*

3. *Caryophyllata; Alpina; flore croceo.*

4. *Caryophyllata; aquatica; flore nutante. C. B. Pin. 321. Caryophyllata, montana, 1, & Caryophyllata, Alpina, nutante flore. Clus. H. 103. Caryophyllata, aquatica, nutante flore, purpureo, Calathi effigie. M. H. 2. 431. Caryophyllata, aquatica, flore rubro, striato. J. B. 2. 398.*

5. *Caryophyllata; Virginiana; albo flore; minore; radice inodorâ. H. L.*

6. *Caryophyllata; montana; flore luteo, nutante. C. H. R. Par. 39. Caryophyllata, montana. H. E. fl. Vern. o. 1. f. 5. Fig. 2.*

7. *Caryophyllata; montana; flore rubro, nutante, prolifero.*

8. *Caryophyllata; Alpina; Chamædryos folio. M. H. 2. 432. Chamædryos Alpina, cisti flore. C. B. P. 248. Chamædryos Alpina, flore fragariæ albo. J. B. 3. 290. Chamædryos III, seu montana. Clus. H. 351. MOUNTAIN-AVENS, WITH GERMANDER-LEAVES. Boerhaave.*

CARYOPHYLLUS. The Clove-gilly-flower, Carnation, or Pink.

The Characters of the *Caryophyllus*, according to *Boerhaave*, are:

The Leaves are of an oblong Figure, entire, conjugated, adhering to the Stalks, without Pedicels.

The Calyx, or Flower-cup, is bifoliated, small, including another small bifoliated one; and, above these two, arises a third cylindrical membranaceous Calyx, quinquelid, or with five Divisions, on its upper Part.

The Flower is pentapetalous, the Leaves, or Petals, arising from the very Bottom of the Calyx, and extending themselves from a long and narrow Beginning to a considerable Breadth, disposed in a Circle, and furnish'd with ten Stamina.

The Ovary grows to the Placenta situated in the Bottom of the Calyx, is furnish'd with two long erect Tubes, and becomes a cylindrical Fruit, which is inclosed in a Calyx, opens at the Top, and is full of foliaceous Seeds.

1. *Caryophyllus flore simplici*, Offic. *Caryophyllus hortensis simplex, flore majore*, C. B. Pin. 208. Tourn. Inst. 331. Elem. Bot. 279. *Caryophyllus simplex major*, Ger. Emac. 590. *Betonica coronaria sive Caryophyllus flore simplici sativus*, J. B. 3. 328. SINGLE PINKS.

The medicinal Virtues of this Species are the same as those of the *Caryophyllus ruber*, specify'd below.

2. *Caryophyllus; hortensis; simplex; flore majore, pallidè purpureascente, vel incarnato*. C. B. P. 208.

3. *Caryophyllus; hortensis; simplex; versicolor*. C. B. P. 208. H. Eyst. Æst. o. 14. F. 11. Fig. 2.

4. *Caryophyllus; hortensis; simplex; variegatus; petalis albescentibus stigmatibus rubris dispersis*. C. B. P. 208. *Caryophyllus, major, sylvestris, variegatus*. H. Eyst. Æst. o. 14. F. 12. Fig. 1.

5. *Caryophylli hortensis; simplicis, flore majore, amœna ex diversitate colorum varietas*.

6. *Caryophyllus; maximus; ruber*. C. B. P. 207. M. H. 2. 561. *Caryophyllus, maximus, plenus, flore rubro*. H. Eyst. Æst. o. 14. F. 6. Fig. 1. *Tunica Officinarum*.

7. *Caryophyllus; maximus; alter; lato Porri folio*. H. R. Par.

8. *Caryophyllus; maximus; variegatus*. C. B. P. 207. M. H.

2. 561. *Caryophyllus, major, rubens & albicans, flore pleno, punctulis rubentibus, fortuitis adperso*. Lob. Ic. 441. *Caryophyllus, multiplex, maximus, variegatus*. H. Eyst. Æst. o. 14. F. 9. Fig. 1. *Betonica, Coronaria, flore pleno, maximo, punctis rubris variegato*. J. B. 3. 327.

9. *Caryophyllus, maximus, & plenissimus; colore misto; carneo; corniculis quibusdam carneis*. Bry. C. B. P. 207. M. H. 2. 561.

10. *Caryophyllus; maximus & plenissimus; colore vario in diversis foliis scarlatino, dilutius rubente, albo*. Bry. C. B. P. 207. M. H. 2. 561.

11. *Caryophyllus; maximus & plenissimus; colore rubro, saturatiore, staminulis tribus niveis in medio*. Bry. C. B. P. 207. M. H. 2. 561.

12. *Caryophylli maximi, hortensis, pleni, amplissima diversitas*.

13. *Caryophyllus ruber, Betonica, Tunica*, Offic. *Caryophyllus hortensis pleno rubro*, Park. Parad. 306. *Caryophyllus multiplex*, Ger. 472. Emac. 588. *Caryophyllus hortensis*, Raii Hist. 2. 986. *Caryophyllus altilis major*, C. B. Pin. 207. Hist. Oxon. 2. 561. Tourn. Inst. 350. Elem. Bot. 279. Boerh. Ind. A. 217. *Betonica Coronaria sativa, sive Caryophyllus flos*, J. B. 3. 327. CLOVE-JULY-FLOWER.

This flowers in July. The Flowers are esteem'd cephalic and cordial, and are principally used in a Vertigo, Apoplexy, Epilepsy, and other Affections of the Head and Nerves; in a Syncope, and Palpitation of the Heart. They are good against Wounds, facilitate Delivery, and are recommended in Weakness of the Stomach, Cardialgia, and pestilential Fevers.

The officinal Preparations of this Clove are a Conserve, see CONSERVA, and a Syrup.

SYRUPUS CARYOPHYLLORUM: Syrup of Clove-gilly-flowers.

Take of Clove-gilly-flowers, with the white Heels cut off, one Pound; let them steep a whole Night in two Pints of Spring-water; then strain the Liquor, and boil it up into a Syrup in a Bath-heat, with two Pounds of the finest Sugar. S. A.

Double the Quantity of Sugar to the same Quantity of Flowers and Water as was before order'd, which was sufficient to give the Consistency of a Syrup as soon as dissolved: But this requires so much boiling before it comes to that Body, that great Care must be taken not to spoil the Beauty of its Colour, which too hastily an Heat will easily do. London Dispensatory.

14. *Caryophyllus; plenus; miniato colore*. H. Eyst. Æst. o. 14. F. 11. Fig. 1.

15. *Caryophyllus; flore majore; dimidiatâ parte carneus; dimidiatâ verò alterâ rubris & albis striis & punctis variegatus; plenus*. H. Eyst. Æst. o. 14. F. 4. Fig. 1.

16. *Caryophyllus; multiplex; foliis florum ex rubro & albo dimidiatim divisis & punctatis*, H. Eyst. Æst. o. 14. F. 5. Fig. 1.

17. *Caryophyllus; plenus; purpureascent; punctatis & laciniatis foliis*. H. Eyst. Æst. o. 14. F. 8. Fig. 1.

18. *Caryophyllus; plenus; miniato colore*. H. Eyst. Æst. o. 14. F. 11. Fig. 1.

19. *Caryophyllus; purpureus; flore multiplici, laciniato*, H. Eyst. Æst. o. 14. F. 11. Fig. 3.

20. *Caryophyllus; multiplex; flore albo*. H. Eyst. Æst. o. 14. F. 10. Fig. 1.

21. *Caryophyllus; multiplex; laciniatus; flore pleno*. H. Eyst. Ib. Fig. 2.

22. *Caryophyllus; multiplex; flore e purpureo rubescente*. H. Eyst. Ib. Fig. 3.

23. *Caryophyllus; plenus; latè rubescens, instar florum mali Persici*. H. Eyst. Æst. o. 14. F. 7. Fig. 7.

24. *Caryophyllus; multiplex; flore carneo*. H. Eyst. Æst. o. 14. F. 5. Fig. 2.

25. *Caryophyllus; purpureus; flore multiplici; profundè laciniato*. H. Eyst. Ibid. Fig. 3.

26. *Caryophyllus; flore minore, pleno, rubescens, punctatus*. H. Eyst. Æst. o. 14. F. 4. Fig. 2.

27. *Caryophyllus; miniatus, medio albescent*. H. Eyst. Ib. Fig. 3.

28. *Caryophyllus; tenuifolius; plumarius; flore pleno, purpureascente*. Flor. 2. 92. *Caryophyllus, flore tenuissimè dissecto*. C. B. P. 209. *Caryophyllus, plumarius, flore inodoro, tenuissimè secto*. M. H. 2. 562. *Superba Recentiorum*. Lob. Adv. 189.

Observ. 241. *Caryophyllæ minor*. Dod. p. 174. *Caryophyllus sylvestris*. H. Eyst. Æst. o. 14. F. 12. 13. 14. *Betonica, coronaria, tenuissimè dissecta, sive Caryophyllæa, superba, elatior, vulgaris*. J. B. 3. 330. *Armerius, simplici flore*. Clus. H. 287.

29. *Caryophyllus; tenuifolius; plumarius; flore pleno, albo*. Flor. 2. 92.

30. *Caryophyllus; tenuifolius; plumarius; flore pleno, albo, cum corollâ purpureâ*. Flor. 2. 92.

31. *Caryophyllus; tenuifolius; plumarius; flore simplici, albo, cum duobus Corniculis*. Flor. 2. 92.

32. *Caryophyllus; tenuifolius; plumarius; flore simplici, pallidè incarnato, cum duobus Corniculis*. Flor. 2. 92.

33. *Caryophyllus; tenuifolius; plumarius; flore simplici, albo, cum corollâ sanguinea*. Flor. 2. 92.

34. *Caryophyllus; tenuifolius; plumarius; flore simplici, carneo, cum corollâ pallidè purpureascente*. Flor. 2. 93.

35. *Caryophyllus; tenuifolius; plumarius; serotinus; flore simplici, odoratissimo*. Flor. 2. 93.

36. *Caryophylli tenuifolii, plumarii, multiplex ex varietate suavi pulchritudo*.

37. CARYOPHYLLUS BARBATUS, Offic. *Caryophyllus hortensis barbatus latifolius*, C. B. Pin. 208. Tourn. Inst. 333. Boerh. Ind. A. 218. *Caryophyllus barbatus, hortensis, simplex, latifolius*, Hist. Oxon. 2. 563. *Betonica coronaria latifolia petraea flore punctulis albis notata*, J. B. 3. 333. *Armeria rubra latifolia*, Ger. 479. BROAD-LEAVED SWEET WIL-

LIAM, Emac. 598. Raii Hist. 2. 991. *Armerius latifolius simplex, flore rubro*, Park. Parad. 319. SWEET WIL-

LIAMS.

I don't know that these are used in Medicine. Dale says, they take Spots out of woollen Cloth, if the Spots are rubb'd with these, and afterwards wash'd with Water.

38. *Caryophyllus; Barbatus; hortensis; latifolius; flore albo*. C. B. P. 208. *Flos Armerius, albus*. H. Eyst. Æst. o. 9. F. 4. Fig. 1.

39. *Caryophyllus; Barbatus; hortensis; latifolius; flore variegato. Flos Armerius, variegatus*. H. Eyst. Æst. o. 9. F. 4. Fig. 3. *Caryophyllus, Barbatus, hortensis, simplex, latifolius, flore versicolore, rubro & carneo guttato in eodem Ramulo, seu diversicolore ex albo, rubro, & medio*. H. L.

40. *Caryophyllus; Barbatus; hortensis; simplex; latifolius; flore carneo*. H. L.

41. *Caryophyllus; Barbatus; flore multiplici*. C. B. P. 208. M. H. 2. 563. *Betonica, coronaria, latifolia, petraea, pleno flore rubro, vel ad purpureum accedente*. J. B. 3. 333. *Armerius, pleno, rubro, flore*. H. Eyst. Æst. o. 14. F. 14. Fig. 1. *Armerius, pleno flore*. Clus. H. 287.

42. *Caryophyllus; Barbatus; flore multiplici, albo*. C. B. P. 208.

43. *Caryophyllus; Barbatus; flore multiplici, roseo*. C. B. P. 208.

44. *Caryophyllus; Barbatus; hortensis; angustifolius*. C. B. P. 209. M. H. 2. 563. *Betonica, coronaria, minus latifolia, flore profunde dissecto*. J. B. 3. 333. *Armerius flos, alter*. Dod. p. 176. *Colore rubro*.

45. *Caryophyllus; Barbatus; hortensis; angustifolius; colore niveo*. C. B. P. 209.

46. *Caryophyllus; Barbatus; hortensis; angustifolius; colore purpureascente, oris albis*. C. B. P. 209.

47. *Caryophyllus; Barbatus; hortensis; angustifolius; flore versicolore in eodem ramulo*. C. B. P. 209.

48. *Caryophyllus; Barbatus; sylvestris; annuus; angustifolius; perpaucis capitulis donatus*. M. H. 2. 563. *Caryophyllus, Barbatus, sylvestris*. C. B. Pin. 209. *Viola, Barbata, angustifolia*. J. B. 3. 335. a.

49. *Caryophyllus; Barbatus; sylvestris; latifolius; annuus; multis capsulis, simul junctis, donatus*. M. H. 2. 563. *Caryophyllus, sylvestris, prolifer*. C. B. Pin. 209. H. Eyst. Æst. o. 14. F. 13. Fig. 2. *Betonica, coronaria, squamosa, sylvestris*. J. B. 3. 335. a.

50. *Caryophyllus; Sinensis; supinus; leucosii folio; flore vario*. T. Ac. Reg. 1705. H.

51. *Caryophyllus*; *Sinenfis*; *supinus*; *leucii folio*; *flore rubro*. H.

52. *Caryophyllus*; *Sinenfis*; *supinus*; *leucii folio*; *flore albo*. H.

53. *Caryophyllus*; *Sinenfis*; *supinus*; *leucii folio*; *flore pleno*. H.

54. *Caryophyllus*; *repens*; *angustifolius*; *flore eleganti rubro*.

55. *Caryophyllus*; *minimus*; *muralis*. C. B. P. 211. *Betonica coronaria*, *sive Tunica minima*. J. B. 3. 337. *Tunica minima*. Lugd. 1191. *Lychnis minima*, *muralis*. M. H. 2.

547. *Flore rubro*. a. b.

56. *Caryophyllus*; *minimus*; *muralis*; *flore albo*. a. b.

57. *Caryophyllus*; *montanus*; *saxatilis*; *flore dilute rubente*; *foliis angustissimis*. *Micheli*. *Boerhaave Index Alter*.

CARYOPHYLLUS SYLVESTRIS, Offic. *Caryophyllus sylvestris vulgaris latifolius*, C. B. Pin. 209. Tourn. Inst. 333. *Betonica coronaria sive Caryophyllus sylvestris vulgarissimus*, J. B. 3. 334. *Betonica coronaria vulgarissima*, Chab. 441. *Armeria alba*, Ger. 478. WHITE JOHNS. Emac. 597. Raii Hist. 2. 990. *An Armerius latifolius flore rubro, saturo, holoserico?* Park. Parad. WILD PINKS.

It grows in Pastures and uncultivated Places, and flowers in June. It is said to be good for the Stone and Epilepsy, taken with Water of Rest-harrow or Lilies of the Valley. Dale.

Besides the *Caryophylli* Cloves above-mentioned, there are some Aromatics which go by this Name; the first of which is, The

Caryophyllus, Offic. *Caryophyllus aromaticus fructu oblongo*, C. B. Pin. 410. Breyn. Prod. 2. 25. Raii Hist. 2. 1508. *Caryophyllus aromaticus vulgaris*, Jons. Dendr. 174. *Caryophyllus aromaticus*, Ogilb. Chin. 1. 223. *Caryophyllus aromaticus Indiæ Orientalis, fructu clavato, monopyreno*, Pluk. Almag. 88. Phytog. Tab. 155. *Caryophyllus Indicus*, J. B. 1. 423. *Caryophylli*, Chab. 32. Park. Theat. 1577. *Caryophylli veri Clusii*, Ger. 1351. Emac. 1535. *Caryophylli aromatici*, Mont. Exot. 9. *Ts-hinka*, Pis. Mant. A. 177. CLOVES. Dale.

These are dark-brown, almost black, Fruit, in Shape of a thick short Nail, somewhat compress'd, with four crooked Horns on the Top, and a round, brittle, hollow Cap in the Middle of them, easily falling off. They are of a pleasant, grateful, hot, spicy Taste. They are the unripe Fruit of a large Tree, with Leaves like the Leaves of the Bay-tree, but of a thicker, firmer Texture. They grow in the *Molucca Islands*, in the *East-Indies*.

Cloves are very heating and drying, cordial, cephalic, and stomachic, stop Vomiting, strengthen a weak Stomach, expel Wind, prevent Fainting, and are good in malignant Distempers. The distil'd Oil cures the Tooth-ach, a Bit of Lint dip'd in it being put into the hollow Tooth.

The only officinal Preparation is the distil'd Oil. Miller's Bot. Off.

There are two Sorts of this Fruit sold in the Shops; the first is the *Cloves* so call'd, being the unripe Fruit, which is oblong, resembling a Nail, angulous, depressed, wrinkled, of a dark-rusty Colour, marked at the Top with four little stellated Apices, with a convex, hollow, little Head in the Middle, whence the Flower is to proceed, which is of an acrid, bitterish, and grateful Taste, and of a most fragrant Smell. The other Sort are the *Anthophylli*, which are the same Fruit with the others, but arrived to perfect Maturity: They resemble an oblong Nail, are blackish, and like the former, only thicker, and more tumid, and including, within a pretty hard Rind, an oblong Grain, of a dusky Colour. You are to chuse such Cloves as have a fragrant Smell, and, when pressed, yield an oily kind of Humidity. The *Anthophylli* are rarely to be met with in our Shops.

They are an excellent Cardiac, Cephalic, and Stomachic, being of a heating, drying, and discussing Quality; for which Reason they are serviceable in a Lipothymy, the Tooth-ach, Crudities of the Stomach, and the Vertigo, and are expulsive of malignant, uterine, and other Disorders. Dale.

The distil'd Oil of INDIAN CLOVES.

This *Indian Spice* is very extraordinary: The greater Sort bears its Seed nearly on the Top; and the lesser, which is without Seed, is so rich in a sharp balsamic Oil, that when perfect, and a little heated, it spontaneously yields one which is highly odoriferous and corrosive, barely by the Pressure of the Finger, or the Prick of a Needle. And it is incredible what a large Proportion of Oil these Cloves contain, when they first come to us from the *Indies*, and are taken from the Middle of the Bags, and immediately examined, so that there is scarce any thing comparable to them, in respect of aromatic Oil. Let a Parcel of these, therefore, be chose perfect, and commit them entire to twelve times their own Weight of Water, and immediately distil them briskly by the Alembic and Worm: There will come over a milky, thick, turbid Water, and, at the same time, a large Quantity of Gold-colour'd Oil, which falls and collects at the Bottom of the Water. When two Thirds of the Water at first poured on are thus come over, change the Re-

ceiver, and add as much fresh Water to the Remains as comes over in Distillation, and work as before, whereby there will be obtained a Water somewhat impregnated with the aromatic Virtue of the Cloves. Keep all the odoriferous Waters apart, to be used instead of common Water in future Distillations of the same Oil. There will now remain at the Bottom a brown, thick, scentless Liqueur, of an acid and somewhat austere Taste, but without any of the former Virtue of the Cloves; tho' these Remains of the Subject so far retain their pristine Form and Colour, as, when half dried, easily to pass upon the unwary for genuine; and, if mixed with those which have not been rob'd of their Oil, they again acquire their natural Smell and Taste, by attracting the Oil of the rest, so that they cannot afterwards be distinguished from them; in which manner they are often fraudulently adulterated by certain Dealers in Spices. The Oil, thus distil'd, always appears somewhat mucilaginous: If it, therefore, be required purer at the first Operation, instead of common Water let Salt and Water be employ'd, and the Distillation be performed after a previous Digestion of two or three Weeks; but the Remainder, in this Case, cannot so well be examined.

REMARKS.

The Oil is extremely heating, and even caustic; and, therefore, affords a very proper and incomparable Remedy in cold Constitutions, and cold Diseases, if prudently used. It is also a noble Medicine for raising the languid Spirits, being used either internally or externally. But it is surprising, that this noble Oil should so soon lose its Spirits, by standing exposed, in a wide Glass, in the warm open Air, at the same time perfuming the Place with its Odour, and at length changing to an indolent, viscous, unctuous Substance; whereas the Spice so long retains this Spirit in the violent Heat of the hottest Country. This Oil is also heavier than Water, so as always to sink to the Bottom thereof, and remain in full Virtue under it. The like is scarce to be found in the Oils of *Europe*, being principally observed only in the hottest Parts of *Asia*, *Africa*, and *America*; and chiefly of the aromatic Trees, as Clove, Cinnamon, Guaiacum, and Sassafras: Yet this Oil, tho' it be so ponderous, becomes volatile with boiling Water, and distils along with the Vapour thereof. Lastly, it is remarkable, that the Plants, abounding with so hot an Oil, do not appear alkaline in their Remains after Distillation, but acid, austere, cold, and considerably fixed, as if it were to detain this Oil, which, of itself, might prove too volatile. *Boerhaave's Chymistry*.

Lint, impregnated with Oil of Cloves, dissolv'd in highly rectify'd Spirit of Wine, is recommended by *Hoffman* as an excellent Application for stopping the Progress of a Gangrene.

Another *Caryophyllus* is, The

CASSIA CARYOPHYLLATA, Offic. *Cassia Caryophyllata, Cortex Caryophylloides*, Mont. Exot. 8. *Caryophyllus folio & fructu rotundo*, Breyn. Prod. 2. 26. *Caryophyllus aromaticus fructu rotundo, Caryophyllon Plinii*, C. B. Pin. 411. Jons. Dendr. 176. *Caryophyllus aromaticus Indiæ occidentalis, foliis & fructu rotundis, dipyrenis seminibus sive orbiculatis planis*, Pluk. Almag. 88. Phytog. 155. Tab. 3. *Anomum quorundam, forte Caryophyllon Plinii*, Ger. Emac. 1610. *Anomum aliud quorundam, & Caryophyllon Plinii Clusio suspicatum*, A SORT OF BASTARD OR FALSE AMOMUM, SUSPECTED BY CLUSIUS TO BE THE GARYOPHYLLON OF PLINY, Park. Theat. 1567. *Anomum quorundam odore Caryophylli*, J. B. 2. 194. SWEET-SCENTED JAMAICA-PEPPER, or ALL-SPICE, Raii Hist. 2. 1507. *Xocoxochilt seu Piper Tavaresii*, Hern. 30. Laet. 277. *Piper Chiapæ*, Redi Lat. 132. THE CLOVE-BERRY-TREE. Dale.

It is produced in great Plenty in the Island of *Cuba*, and other Parts of the *West-Indies*. Its Bark, which is used for medicinal Purposes, is slender, of a reddish or rusty Colour when its external Pellicles are removed, and wrapt up in the Form of small Pipes: It is of an acrid, pungent, aromatic Taste, and of a fragrant Smell, resembling that of Cloves. The Fruit of this Tree is fraudulently sold in the Shops for the *Carpobalsamum*, or, according to others, for the *Amomum*. This Fruit is a round blackish Berry, a little larger than Pepper, umbilicated in the Top, and including, under a slender Pellicle, and a fungous Substance, two black Seeds, of a Taste and Smell approaching to those of Cloves. It is cephalic, cordial, and agrees with Cloves in all their Virtues. Dale. *Pharmacolog*.

A third Sort of *Caryophyllus* is, The

Pimenta, Offic. *Piper Jamaicense quibusdam, odoratum Jamaicense nostratibus*, SWEET-SCENTED JAMAICA-PEPPER, or ALL-SPICE, Raii Hist. 2. 1507. *Myrtus arborea, foliis laurinis, aromatica*, JAMAICA PEPPER-TREES, Trans. Philosoph. Abr. p. 663. N. 192. Cat. Jamaic. p. 161. Hist. 2. 76. Tab. 171. Raii Dendr. 33. *Caryophyllus aromaticus Americanus, Lauri acuminatis foliis, fructu orbiculari*, Pluk. Almag. 88. Phytog. 155. Tab. 155. *Piper Caryophyllatum, Piper Jamaicense*, Mont. Exot. 9. Coccini

Cocculi Indi aromatici, Mus. Regiæ Societ. JAMAICA PEPPER, or ALL-SPICE. Dale.

The *Myrtus arborea*, *foliis laurinis aromatica*, *Pimenta*, or *Jamaica Pepper-tree*, has a Trunk as thick as one's Thigh, rising straight about thirty Feet high, covered with an extremely polite or smooth Skin, of a grey Colour, and branched out on every hand, having the Ends of its Twigs set with Leaves of several Sizes; the largest being four or five Inches long, and two or three broad in the Middle where broadest; and, when it decreases to both Extremities, ending in a Point, smooth, thin, shining, without any Incisures, of a deep-green Colour, and standing on such long Foot-stalks, when bruised, very odoriferous, and, in all things, like the Leaves of a Bay-tree. The Ends of the Twigs are branched into Bunches of Flowers, each Foot-stalk sustaining a Flower, made up of four herbaceous or pale-green Pelata, bowed back, or reflected downwards, within which are many Stamina of the same Colour. To these follow a Bunch of crowned or umbelated Berries, (the Crown being made up of four Foliola or small Leaves) which are bigger when ripe than Juniper-berries; at first when small, greenish, but when ripe, they are black, smooth, and shining, containing, in a moist, green, aromatic, and biting Pulp, two large Acini or Seeds, separated by a Membrane lying between them, each whereof is an Hemisphere, and both joined make a Globe or spherical (appearingly one) Acinus; whence *Clusius* makes it one Seed divisible into two Parts.

It grows on all the hilly Parts of the Island of *Jamaica*, but chiefly on the North Side thereof; and where-ever these Trees grow, they are generally left standing when other Trees are fell'd; and they are sometimes planted where they never grew, because of the great Profit from the cured Fruit, sent in great Quantities yearly into *Europe*.

It flowers in *June*, *July*, and *August*, but, in several Places, sooner or later, according to their Situation, and different Season for Ruins; and, after it flowers, the Fruit soon ripens; but 'tis to be observed, that, in clear open Grounds, 'tis sooner ripe than in thick Woods.

There is no great Difficulty in the curing or preserving of this Fruit for Use: 'Tis, for the most part, done by the Negroes; they climb the Trees, and pull off the Twigs, with the unripe green Fruit, and afterwards carefully separate the Fruit from the Twigs, Leaves, and ripe Berries; which done, they expose them to the Sun, from its Rising to Setting, for many Days, spreading them thin on Cloths, turning them now-and-then, and carefully avoiding the Dews, which are there very great. By this means they become a little wrinkled, or rugous, dry, and from a green change to a brown Colour; and then they are fit for the Market, being of different Sizes, but generally of the Bigness of black Pepper, something like in Smell and Taste to Cloves, Juniper-berries, Cinnamon, and Pepper; or rather having a peculiar mix'd Smell, somewhat akin to them all; whence the Name of *All-spice*. The ripe Berries are very carefully separated from those to be cured, because their wet and plenteous Pulp renders them unfit for Cure; whence these Berries always coming unripe dried into *Europe*, has been the Occasion of Naturalists thinking it to be *Fructu umbilicato secco*. The more fragrant and smaller they are, they are accounted the better.

This Fruit, with Water distil'd *per Vesicam*, yields a very odoriferous Chymical Oil, sinking to the Bottom of Water, like Oil of Cloves. It may deservedly be counted the best and most temperate, mild and innocent, of common Spices; and fit to come into greater Use, and to gain more Ground, than yet it hath, of the *East-India* Commodities of this kind, almost all of which it far surpasses, by promoting the Digestion of Meat, attenuating tough Humours, moderately heating, strengthening the Stomach, expelling Wind, doing those friendly Offices to the Bowels, as we generally expect from Spices.

It is now commonly sold by Druggists for *Carpobalsamum*, which, I suppose, came from *Hernandez*, who says it may be its Succedaneum; but it is not altogether like that Fruit, but seems more fragrant, and less astringent and balsamic. *Clusius* says, that it takes away, if chewed, a stinking Breath. *John de Barrius* tells us 'tis one of the Ingredients of Chocolate in *New Spain*: And *Franciscus Pria*, who brought it from *New Spain*, and gave it to *Redi*, said it was there commended against the Epilepsy and Gutta Serena; which he in divers Persons try'd, but without Success; but he, at the same time, says he thinks it a good stomachic and cephalic Medicine, moderately given.

It has been taken by *Clusius* for *Pliny's Caryophyllon*, and by others for *Anomum*; but it is not likely, that it was known to the Antients, not being known to grow in the *East*, but *West-Indies*.

It is very likely, that *Hernandez* describes this under the Name of *Kocoxite seu Piper Tawasci*, his Description agreeing in every thing but the Flower, which noways agrees to this. And, perhaps, this is the Tree which *Piso* describes under the Name of *Anhuiba Miri*. *Philos. Trans. abr.*

CARYOTI, καρυώτι. A Name in *Galen, de Al. Fac. Lib. 2. Cap. 26.* for the best Dates, or Fruit of the Palm-tree, growing in *Syria* and *Palestine*.

CASAMUM, κάσamon, in *Myrepsus*, and the later Greek Writers, is a Name for the *κυκλαμναία* (*Cyclamen*). *Fuchsius in Myrep. Antidot. Cap. 412.*

CASCARILLA. A Diminutive from *Cascara*, which, in *Spanish*, signifies Bark, or a Shell. The Drug most generally known by this Name is the *Peruvian Bark*, which is at this time entered at our Custom-house by the Name of *Cascarilla*. But some other Barks have been call'd by this Name, probably at first by People unacquainted with the Import of the Word; and this has introduced some Confusion in the *Materia Medica*.

The Bark, which *Dale* calls by the Name of *Cascarilla*, is The

Cortex Thuris, Offic. *Cortex Thuris nonnullis dictus, vel Thymiana*, Raii Hist. 2. 1841. *Elaterii Pharmacopol. vel Elaterii Cortex, Thymiana*, Schrod. 4. 166. *Cascarilla*, Ind. Med. 29. *Schakarilla, Chakarilla*, Mont. Exot. 8. *Kinalina Aromatica Palode Calenturas. Cascarilla, Cortex Eleterii, sive Scacarilla Officinarum. Cortex Peruvianus griseus, sive spurius*, Geoff. Traët. 307. *Storax rubra Officinarum*, C. B. Pin. 452. *Jonf. Dend. 127. Thus Judæorum*, Park. Theat. 1602. INDIAN BARK.

It is imported into *Europe* from the *East-Indies*, but we have it from one of the *Bahama Islands* in *America*, called *Elatharia*. The Bark is cannulated, consisting of a Collection of little Tubes or Pipes, and is in small Bits, of the Thickness of Cinnamon, of the Colour of rusty Iron, of an acrid, aromatic, and bitter Taste, and of a sweet and pleasant Smell, especially when it is burnt. It generally wants its outer Rind, which is rough, and of an Ash-colour. The most valuable is what is thick, fat, scented, smooth, and without the least Asperities. In Suffumigations, wherein it is a common Ingredient for the sake of its pleasant Smell, it helps Contractions of the Uterus.

Tho' this Drug be called *Cortex Thuris*, that is, the Bark of *Frankincense*, in the Shops, yet Naturalists are not agreed about the Tree from which it is taken, some assigning one Tree, some another. Some will have it to be the *δάσκαρδος*, or *δάσκαρδος* of *Dioscorides*, *Lib. 1. Cap. 22.* which he makes to be a sort of Bark imported from *India*, like the Bark of the Mulberry-tree, and used in Suffumigations for the sake of its grateful Smell. *Casalpini* takes it for the outer Bark of the Nutmeg-tree; *Amatus*, for that Species of Calambac which the Portuguese call *Lignum Aquilæ*, that is, *Eagle-wood*; *Parkinson* thinks it is the Bark of that very Tree which bears the *Frankincense*. Whether it be any or neither of these Trees, I shall not take upon me to determine; tho' I cannot be of the Opinion of *C. Bauhine* and *Bellonius*, that this Bark is the same with the red *Styrax* of the Shops. Dale.

I cannot take upon me to determine whether this Bark mentioned by *Dale*, and said to be produced in the *East-Indies*, is the same as the *West-Indian Bark*, which now goes by the Name of *Cascarilla*, or a different Sort. With respect to this latter, *Juncber*, *Valentini*, and some German Authors, confound it with the *Cortex Winteranus*. The best Account of this *Cascarilla* I have met with is in the *Hist. de l'Acad. Roy. des Sc.* as follows:

The *Cascarilla*, a Medicine little known, and hardly mentioned in any of our Histories of Drugs, is a pretty woody Bark, about a Line, or a Line and an half thick, of a Colour almost resembling that of the common *Quinquina*, but of a somewhat paler brown, less compact, more friable, of a bitter, and somewhat styptic Taste, pungent, and pretty acrimonious to the Tongue, and leaving at last a Sensation of Bitterness, mixed with something of an aromatic Nature. This Bark is covered with a Pellicle, which is whitish, slender, insipid, wrinkled, and gently furrowed in various Parts. This is the Bark of a *Peruvian Plant*, as yet unknown.

It bears so near a Resemblance to the *Quinquina*, that, as there are at present six Species of this latter enumerated, it is reckoned as a seventh. It is by some also called *Kina-kina spuria*, or *falsa*; or *Kina-kina urens*, or *Kina-kina odorifera*. It is by Druggists called *Cortex Elaterii*, no doubt on account of its pungent Bitterness, resembling that of the *Elaterium*. But it is by no means probable, that it is the Bark of the wild Cucumber; for the Name *Chacril*, which we (the French) give it, comes from the *Spanish Word Chacarilla*, or *Cascarilla*.

Cascarilla, notwithstanding its Resemblance to the *Quinquina*, differs very much from it. The former is more bitter, acrid, and almost caustic to the Taste; whereas the *Quinquina* is of a more disagreeable Bitter, and of a more astringent or styptic Quality. The *Cascarilla*, when heated or burn'd, diffuses a more aromatic Odour than the *Quinquina*. In a Word, the *Cascarilla*, when kindled at a Wax Candle, yields a thick Smoke, and a large Quantity of a sooty Matter; and what remains is only a rarefied and distended Coal, like that of burned Resins; a Circumstance which shews it to contain a large Quantity of a resinous Matter in comparison of the *Quinquina*.

Hence Mr. *Boulduc* the younger, when inquiring into the Nature and Effects of *Cascarilla*, thought that, by means of the

the Spirit of Wine, it would yield a large Quantity of a resinous Extract; and, upon making the Experiment, one Ounce of the *Cascarilla* yielded five Drains of a resinous Extract, of a bitter, pungent, aromatic Taste, like that of the Substance before the Process, and of a beautiful purple Colour. Mr. *Boulduc* was not acquainted with any Vegetables which yielded so large a Quantity of Extract; for scarce twenty Grains can be obtained from an Ounce of *Quinquina*. The Fæces, when dried, weighed three Drains, and consisted only of the earthy and fixed Parts of the *Cascarilla*. From this Circumstance it appears, that a very small Quantity of the compound Body must be possessed of very considerable Virtues.

The deceased Mr. *Fagon* often told Mr. *Boulduc*, that when the *Quinquina* was as yet scarce in *France*, he often employed the *Cascarilla* with Success in intermittent Fevers. In all Probability its resinous and penetrating Parts divide and attenuate the ill-concocted, thick, and viscid Substance, which is the Cause of the Fever. This Febrifuge has the Advantage over the *Quinquina* in this respect, that it acts in a smaller Dose, and is not necessary to be so long continued.

Upon the Whole, Mr. *Fagon*, according to the Account of Mr. *Boulduc*, was so firmly persuaded, that, in febrifuge Medicines, it was the resinous Part which principally contributed to the Cure of the Fever, that he often ordered an Infusion of the *Quinquina* to be made with *Aqua Vitæ*, as a kind of Assistant to the ordinary Infusions, and in order to hasten and accelerate the Effects of the *Quinquina*. Some others, who are of the same Opinion, add different resinous Substances.

Apinus, a celebrated Physician and Professor at *Altorf*, seems to have been the first who employ'd *Cascarilla*, either in Tincture or Infusion, for the Cure of epidemic and catarrhus Fevers, and in Substance for the Cure of those of the ordinary Kind. The illustrious Mr. *Stahl*, Physician to the King of *Prussia*, extended its Use farther, and prescribed it for severe and convulsive Coughs, such as those called Chin-coughs. And even in these Cases the *Cascarilla* produces its Effects, by incising and attenuating the viscid Matter. For the same Reason, it is highly beneficial in Cases where the Intention is to assist or augment Transpiration.

Mr. *Boulduc* experienc'd the Virtues of *Cascarilla* in flatulent Colics, and in those hysteric or hypochondriac Disorders, commonly call'd Vapours. But it must be observed, that when the Intention is only to attenuate and render the Humours subtiler, the Tincture of *Cascarilla* is sufficient for that Purpose, because it contains all the resinous Part: Whereas, when the Intention is to restore and confirm the Tone of any Parts that have been shock'd, agitated, or strain'd, *Cascarilla* in Substance ought to be prescrib'd; because 'tis in this Case necessary, that its earthy and styptic Parts should perform the Office of Astringents.

Cascarilla, in Substance, is of singular Service in the internal Hemorrhoids, which flow with Difficulty, provided the Patient is of a pretty corpulent Habit of Body. This happens, because in such a State the Skin being relaxed, the *Cascarilla* augments the Transpiration, in consequence of which, the Humours will have more Liberty, and the Hemorrhoids be opened. Perhaps, also, the *Cascarilla* may contribute to make the Hemorrhoids flow, by restricting and bracing up those Vessels which contain the hæmorrhoidal Blood. Of this Fact Mr. *Boulduc* himself was a Witness.

But what he observ'd, as more particularly advantageous in the *Cascarilla*, was the singular Service it did in the Dysenteries which raged in the Year 1719. whether accompany'd with a Fever or not. *Ipecacuanha* on this Occasion was almost brought into Disrepute, and *Cascarilla* acquired a great Reputation, which does not at the same time prove, that it would have been equally beneficial in any other Year, since, to the great Misfortune of Mankind, those Diseases of different Years which go under the same Name, are yet of widely different Natures. Mr. *Boulduc* found, that whereas *Ipecacuanha*, and the other emetic Vegetables, left a long Indisposition, and a great Weakness in the Stomach, *Cascarilla* speedily restored and confirmed its Tone and Strength. This Bark then has the same Virtues with its fellow Medicines the *Quinquina* and *Ipecacuanha*, and perhaps exerts them to greater Advantage than either the one or the other. Mr. *Boulduc* *Hist. de l'Acad. Royale des Sciences, Ann. 1719.*

CASCHU. The same as CATRECHU, which see.

CASEUS, τυρός. Cheese.

New Cheese, and unsalted, is nourishing, agreeable to the Stomach, and easily distributed; it engenders Flesh, and gently mollifies the Belly. Cheese differs in Goodness according to the Nature of the Milk, of which it is made. Boiled, then pressed, and afterwards toasted, it acquires a binding Quality; apply'd as a Cataplasm to the Eyes, it helps Inflammations and Sugillations. Cheese new-salted yields less Nourishment [for ἐνπεσάρτος, I read ἀρροσάρτος with *Saracenus*, and the Sense requires it], diminishes the Flesh, is bad for the Stomach, and disorders the Belly and Intestines; but stale or old

VOL. II.

Cheese has a binding Property. Whey is very nourishing to Dogs. *Discorides; Lib. 2. Cap. 79.*

Cheese receives an Acrimony from the Rennet in its making, and deposits all its Humidity, but more remarkably when it has been long kept; for then it becomes more acrid than before, and is manifestly of a more heating and ardent Quality; whence it is render'd more provocative of Thirst, more difficult of Digestion, and of a worse Juice. Though Cheese, therefore, be endued with acrimonious and attenuating Properties, which ought to belong to such gross Aliments, it cannot be said to be a harmless Food; for it is more pernicious on account of the Badness of its Juice, and its burning Heat, than beneficial by its attenuating Quality, which does not render this Juice less disposed for the Generation of Stones in the Kidneys; for we have shewn, that Stones breed in those Bodies, where a Thickness of the Juices is accompany'd with an igneous Heat. Such Cheese, therefore, is to be avoided, as not at all conducive either to Concoction or Distribution, nor promoting Evacuations by Stool or Urine, nor generating good Juices. Cheese which is neither old nor acrimonious is bad, but less hurtful than the other. Of all new Cheese, the best is what is made with us at *Pergamus*, and in *Mysia* above *Pergamus*, and is called by the Inhabitants four-milk Cheese [*ἑτερογάλακτος*]. It is really a most pleasant Food, not at all noxious to the Stomach, but of all Kinds of Cheese the most easy of Digestion and Passage, of no vicious Juice, nor considerably gross, which is the common Fault of all Cheese. That is an excellent Sort too, which is in so much Request at *Rome* among the wealthier People, and goes by the Name of *Bathys*; and there are some very good kinds of Cheese to be met with in other Countries. Now, since there is a very considerable Difference in Cheese, with respect to the Nature of the Animals which yield the Milk, and the Way of Making, besides the Age, we shall here endeavour to sum up their Properties under a few Heads, which if well considered, we cannot be at a Loss to distinguish the Good from the Bad. These Properties then in general may be reduced under two Heads; the first of which regards the Substance of Cheese, in which respect it is either harder or softer, denser or looser, glutinous or friable. The other general Head respects the Taste, as some Cheese is distinguish'd for its Tartness, other Sorts for their Acrimony, Fatness, Sweetness, or some other Taste, or for an equal Mixture of all these Tastes. With respect then to the particular Distinctions under these two Heads, soft Cheese is preferable to hard, and that of a rare and lax Substance to the denser and more compact; but since Cheese which is very glutinous, and what is friable even to Asperity, are both vicious, a Medium between these two Properties is best. As to the Distinctions which arise from Taste, that is the best Cheese which has no Quality in Excess, but exceeds a little in Sweetness; what is mild is better than the strong, and what is moderately salt is to be chosen before that which is either very much or not at all salted. Moreover, if you would take upon you to examine Cheese, you have another Way to know the better from the worse; and that is from Eructation; for Cheese, whose Taste goes off gradually, is the most wholesome; but that whose Taste continues long, is not good, for this plain Reason, because it is very difficult of Alteration, and therefore very hard to be digested; and we know, that Concoction of Aliments is necessarily followed by an Alteration of all the before-mentioned Qualities. *Galen. de Aliment. Facult. Lib. 3. Cap. 17.*

Cheese is nourishing enough, helps Digestion, and produces several other good Effects, if you take but a little of it.

When Cheese is too new, 'tis hard of Digestion, heavy upon the Stomach, and causes Wind and Obstruction; but on the contrary, when 'tis too old, it heats much, by reason of its great Acrimony, produces bad Juice, has an unpleasant Smell, and is binding.

It contains much Oil, an indifferent Quantity of essential Salt, and little Phlegm and Earth.

It agrees, at all times, with young People, who are used to hard Exercise or Labour, and have a good Stomach; but old Folks, and nice Persons, used to an idle Life, and who have some Touches of the Stone and Gravel, ought to abstain from it, or use it moderately.

Cheese is nothing but the Curd of Milk separated from the Whey, and hardened by a slow Heat.

We are to look upon Cheese as the grosser and more compact Part of the Milk; from whence we may easily judge, that 'tis nourishing enough, and proves solid Nourishment; but 'tis hard of Digestion, when made use of to Excess, tho' otherwise it may help Digestion, if taken sparingly.

Cheese is made either of skimmed Milk, or that which has the Cream in it; and the last is much better than the other, because of the creamy and butterish Part remaining in it, which is the most exalted Part of the Milk, and most full of oily Principles, and volatile Salts.

Cheese made of Cows Milk is that which is mostly used. It is of a very pleasant Taste, nourishing enough, but a little hard of Digestion: Some pretend, that Cheese made of Sheeps Milk, is to be preferred before the other, because 'tis easier of Digestion, and is not so gross and compact a Substance as the other; however, 'tis not so nourishing as Cheese made of Cows Milk.

They also make Cheese of Goats Milk, but it is not much valued; however, 'tis easily digested and dissolved. There are several other Animals which yield Milk, of which Cheese may be made; but we shall not speak of them here, because such sort of Cheeses are not in Use amongst us. When Cheese is new, it is soft, viscous, and full of Moisture, and it is then heavy upon the Stomach, windy, and hard of Digestion; however, it is nourishing enough, and a little laxative: When, on the other hand, Cheese that is too old, grows dry, pungent, and burns the Tongue, smells strong and unpleasantly, and produces the several ill Effects before-mentioned: In a Word, old Cheese can hardly be known to be the same as when it was new; and *Matthiolus* seems to be of Opinion, that it is then only good for gouty Persons, by being outwardly applied to the Parts where they feel their greatest Pains; and this Author, to support his Notion, instances some Persons, who by the Use thereof have been recovered.

We therefore conclude, that Cheese which is neither too old nor too new, is the wholesomest of any. *Lemery on Foods.*

It is well known, that Oils by Age grow rancid and acrid. This happens in rich Cheese, that is, Cheese replete with Oil; inasmuch that *Boerhaave* informs us, he has known the Lips, Gums, Tongue, Palate, and Fauces, violently inflamed by the Use of it. The Stomach, therefore, and Intestines, must be very great Sufferers by Cheese of so acrimonious a Nature.

It is a vulgar Opinion, that old Cheese digests every thing else, but remains itself undigested. I don't know what Foundation there is for this, nor can I determine whether it is true, or a vulgar Error. But I should suspect, that in case of a Viscidity of the Juices contain'd in the Stomach, old rotten Cheese may, by its Acrimony, attenuate these Viscidities, and thus act medicinally.

The particular Aversion, which some People have to Cheese, is utterly unaccountable, however real.

CASIA. The same as CASSIA, which see.

CASIBO. Cyprus, (a Species of exotic Privet). *Johnson.*

CASM NARIS, or CASMUNAR. See CASSUMMUNAR.

CASSA. A barbarous Word, in *Fullopins de Offib.* for Thorax.

CASSALE *Vulnus*. A Term used by some Physicians to signify a Wound in the Breast; it is derived from the Arabic *Cas*, the Breast.

CASSAMUM, *κασαμιν*, a Name given by some to the Fruit of the Balsam-tree. *P. Aegineta, Lib. 7. Cap. 3.*

CASSATUM, weak, spiritless, and grumous Blood in the Veins, hindering the Passage and Motion of good Blood. *Paracelsus Archidox. Lib. 7. Sect. de Specifico Diaphoretico.*

CASSAVI. A sort of Bread used in the *West Indies*, and made of the Root of the Plant *MANIHOT*, which see.

CASSIA. The Characters of the Cassia are;

The Flowers are pentapetalous, disposed in an orbicular Order; with a Stylus like a Proboscis.

The Pods are either long and cylindrical, or flat, divided into many Cells by transverse Partitions, which are lined with a black Pulp, containing hard Seeds.

Boerhaave mentions four Species of CASSIA.

1. *Cassia*; *Americana*; *fartida*; *foliis oblongis, glabris*. T. 619. *Pajomirioba*. J. Pisonif. Edit. 1658. 185. *Senna, occidentalis, odore Opii viroso, Orob. Pannonici foliis mucronatis, glabra*. H. L. H. Prægn. THE STINKING AMERICAN CASSIA, WITH OBLONG SMOOTH LEAVES.

2. *Cassia*; *Americana*; *fætida*; *foliis subrotundis, acuminatis*. T. 619. *Pajomirioba*, II Pisonif. Edit. 1658. 185. *Senna, occidentalis, odore Opii minus viroso, foliis glabris obtusis*. H. L. H. Prægn. THE AMERICAN CASSIA, WITH ROUNDISH POINTED LEAVES.

3. CASSIA FISTULA, Offic. Ind. Med. 29. Ger. 1242. Emac. 1431. *Cassia solutiva, Cassia fistularis*, Mont. Exot. 10. *Cassia fistula Alexandrina*, THE ORDINARY PURGING CASSIA. Raii Hist. 2. 1746. C. B. Pin. 403. Tourn. Inst. 619. Elem. Bot. 492. Boerh. Ind. A. 2. 58. Commel. Flor. Mal. 73. *Cassia nigra seu fistulosa prima, seu Cassia fistula Alexandrina*. Cat. Jam. 145. Hist. 2. 42. *Cassia fistula Chaiarsambar vocata*. Alp. Egypt. 7. *Cassia fistula vulgaris flore luteo*, Breyn. Prod. 2. 26. *Cassia solutiva vulgaris*, Park. Theat. 234. *Cassia purgatrix*, J. B. 1. 416. Chab. 89. *Cassia fistula purgatrix Alexandrina*, Jons. Dendr. 382. *Arbor Cassiam solutivam ferens*. Bont. 101. Gonna. Hort. Mal. 1. 37. Tab. 22. *Quauhayobuatli* 2. *seu Cassia fistula*. Hern. 87. THE PUDDING PIPE-TREE. Dale.

This is the Fruit of a great Tree which grows in *Egypt*, and in both the *East* and *West Indies*: It bears large winged Leaves, in Shape resembling the Leaves of the Walnut-tree, among which grow yellow five-leav'd Flowers, each succeeded by a long, slender, round Pod or Fruit, scarce an Inch in Diameter, but a Foot, and often two Foot long, whose Outside is a dark brown, hard, woody Bark, having a large Seam running the whole Length on the one Side, and another less visible on the other: The Inside is made up of a great Number of thin Plates or Partitions, covered with a black sweet Pulp, with a flattish, smooth, oval Seed between every Partition, *Miller's Bot. Off.*

Prosper Alpinus is of Opinion, that those Pods of the Cassia are the best, which, when shaken, make a kind of Noise by the Motion of the Seeds contained within them; and affirms, that such of them as do not make this Noise are despised by the *Egyptians*, who think that this Accident happens in consequence of the Pulp being vitiated, and an aqueous Humidity collected within. But *Veslingius* maintains the contrary in the following Words. "The *Egyptians*, says he, who dealt in "Cassia, persuaded our Countryman *Alpinus*, that those Pods "were the best, which, when shaken, made a Noise; but I "observed the more skilful Merchants carefully separate those "which made such a Noise, from the more solid Pods; and "if one Part of the Pod was solid, and the other rattling, "they broke off the latter as useless; since it only contains "dry Seeds, and is destitute of a sweetish Pulp, and that thin "Juice with which those that are solid abound. But as the "State of all Things is changeable, so an unlucky Accident "often destroys the Fruit of the Cassia, when upon the very "Brink of Maturity; for in high Winds the Pods are dash'd "against each other, and fall off in great Numbers; after "which they are of no Use for medicinal Purposes. The several Pods, therefore, of the same Branch are tied together, that they may the better sustain the Shock of Accidents. The great Care necessary to preserve them from the "Attacks of Thieves, is a Circumstance which considerably "enhances their Price." These Pods are not to be gathered for medicinal Uses, till they are entirely ripe: But they are often bought by foreign Merchants, after they are very old, since a large Quantity of them is frequently laid up in Store-houses, and kept sometimes for forty Years. These Pods, immediately when gathered from the Trees, are so disposed of in proper Places, that the Air may not have Access to them; since by the smallest Approach of that Fluid the Cassia is corrupted. Hence the Cassia-pods imported to the *Venetians* are generally become acid and vitiated with Age: For this Reason, *Prosper Alpinus* advises Physicians and Apothecaries not to suffer themselves to be imposed upon for the future, but to make Choice of such Pods as are recent, and whose Substance is of a sweetish Taste, rejecting those which are old, and of an acid or saline Flavour. The *Egyptians* never use the Cassia-pods till they are four Months old, since, when young and recent, they are observed not only to be useless, but noxious. They use the Pulp, extracted from the Pod, either in the Form of a Bolus or a Potion, in all the Diseases and Symptoms arising from an over-heated Bile; for they are of Opinion, that *Cassia* exhibited internally, by evacuating and obtunding the hot and parched Parts of the Blood and Humours, cools the Blood, and renders it more pure; they also find from Experience, that, by its means, the Stomach is disburdened of any excrementitious Substance that may prove offensive to it. They also use it with great Success in Defluxions of hot Humours upon the Lungs or Thorax, exhibiting it either alone, or mix'd with Sugar-candy, or with Oil of sweet Almonds. When either thus prepared, or used without any Admixture, they find it singularly beneficial to the Bladder and Kidneys. This Pulp of the Cassia-pod, made up with Sugar-candy and Liquorice, they generally use as an Arcanum in Disorders of the Kidneys and Bladder; for it extinguishes an immoderate Heat of the Kidneys, scours the Humours from these Parts, and discharges them by Urine: Hence the frequent Use of it prevents the Generation of Stones and Gravel. The Cassia Pulp, in Conjunction with Agaric, is also used by the *Egyptians* against immoderate Coughs, Dyspnoeas, Asthmas, and Orthopnoeas. They also use it by way of Plaster, to be apply'd to the Parts affected, in hot Pains of the Joints, the Gout, and hot Inflammations. They preserve, in Honey, or Sugar, the small green Pods of the Cassia, after having gently boiled them in Water, and dried them in a Shade. These they keep for the Use of Children and delicate Women; to the latter of whom they exhibit four Ounces at most for a Dose, and to the former only one. These they also prescribe for the before-mentioned Disorders. The Flowers preserved with Sugar make a highly beneficial Medicine for correcting the Heat of the Kidneys, and eliminating the tough and viscid Recrements lodg'd in the Ureters: Besides, these Flowers are, by the *Egyptians*, used for alleviating Pains of every kind, especially those of the Gout. *Prosper Alpinus, Aledicina Egypt. L. 4. Cap. 5.*

Acosta,

Acoſta, in his *Treatiſe de Medicamentis in India orientali naſcentibus*, informs us, that, in the *East-Indies*, Eryſipelafes and Inflammations are anointed with the Pulp of the Caſſia. The Caſſia-pods, whilſt as yet green, are preſerved with Sugar, and an Ounce of them, with Succeſs, is exhibited to tender Women and Children. Theſe muſt be choſen when recent, and very tender, before the Bark is indurated. They muſt alſo be macerated in cold Water, before they are prepared with the Sugar. The Flowers, when thus prepared, are gently purgative, and operate without creating any Uneaſineſs.

Bontius, in his *Hiſtoria Naturalis & Medica Indiæ orientalis*, informs us, that the Uſe of the Caſſia-pulp is very frequent among the *Malayans*, in Diſorders of the Kidneys and Bladder, and in all nephritic Indiſpoſitions; as alſo in Gonorrhæas, contracted by impure Embraces, when it is mix'd with Powder of boil'd Turpentine. The Caſſia cultivated in *America*, according to *Nicolaus Monardes de Medicamentis ſimplicibus ex occidentali India dilatis*, purges gently, and without any Gripes; and evacuates principally Bile, then Phlegm, and laſtly the Matter which obſtructs the Inteſtinal Duets. It renders the Conſtitution of thoſe who uſe it temperate, and purifies the Blood. It is beneficial in all Diſorders; but more eſpecially thoſe of the Kidneys, and urinary Bladder, if exhibited two Hours before Supper: It is good againſt Deſluxions, if taken two Hours after a light Supper. It is daily uſed, in the Form of a Linctus, againſt Diſorders of the Breſt and Sides. It is proper in feveriſh Heats, and extinguishes Thirſt. The daily Uſe of it, before Dinner or Supper, prevents the Generation of the Stone and Gravel. When mix'd up with the Oil of ſweet Almonds, it is an excellent external Application for alleviating violent Pains of the Lungs and Kidneys. The Doſe of the Pulp is from ten Drams to an Ounce and an half; and of the Pulp, in Conjunction with the Pod, four Ounces. In *America* the tender and newly form'd Pods are preſerved, after having been prepared, and boil'd with Sugar. Theſe purge, without creating an Uneaſineſs, or exciting any of thoſe Symptoms and Gripes which generally attend the Uſe of Purgatives; for they are grateful to the Taſte, and operate eaſily. The Doſe is from two to three Ounces.

The Flower may be preſerved in two Manners; for it may either be triturated with Sugar, like Sugar of Roſes, or the entire Flower may be put in Sugar, and boil'd along with it. When prepared in either of theſe manners, it taſtes well, and evacuates without creating the Patient any Uneaſineſs. Two or three Ounces may be given for a Doſe. If this Medicine ſhould not answer the Intention, it is owing to the Coarſeneſs of the Sugar with which it is prepared. The Pods of the Caſſia are at preſent imported into *Europe* from *Egypt*, and the *East-Indies*; as alſo from *Brazil* and *Antigua*, in *America*. Thoſe are accounted beſt which are blackiſh, ſmooth, weighty, full of a pinguious Pulp, on the Backs of which reddiſh Streaks are conſpicuous, which are recent, ripe, and when ſhaken make no Noiſe. Thoſe imported from the *East-Indies* are reckon'd worſt, becauſe they are generally corrupted by the Length of the Time required for performing the Voyage; they are, perhaps, alſo gather'd before they are fully ripe, that they may not corrupt ſo ſoon as otherwiſe they would. In the *Pharmacopæia Bruxellenſis*, it is affirmed, that one Ounce of *Braſilian* Caſſia purges more effectually than two of the *Egyptian*, which is the common Caſſia of the Shops, and is generally call'd *Siliqua Ægyptia*, and *Fiſtula Alexandrina*. It was firſt introduced into Medicine by the *Arabians*; but, according to Dr. *Freind*, in his *Hiſtory of Phyc*, *Ætſuarius* was the firſt of them who mentioned and deſcribed it among the milder and more gentle Purgatives. *Ætſuar. Method. Medend. L. 5. Cap. 2.* It is not mentioned by the antient *Greeks*, with whom, for the moſt part, the καſία σίγγρη, or Caſſia Fiſtula, imported the Cinnamon of the Moderns. But among the later *Greeks* the purgative Caſſia was call'd καſία μέλαινα, καſία κεκαθαμένη, and καſία καθαριζαίμη. When, therefore, in the Compoſitions of the antient *Greeks*, Caſſia is preſcrib'd, Cinnamon is to be uſed. The ſame Rule is to be follow'd, in thoſe Writings of the *Arabians*, in which they recount the Compoſitions of the *Greeks*, as alſo in ſuch Medicines as do not render the Body ſoluble. But if Remedies of a purgative Intention are either deſcribed or ordered by the *Arabians*, we are, in this Caſe, to uſe purgative Caſſia, as is very juſtly obſerved in the *Antidotarium de exacta componendorum Medicamentorum ratione*, by *Matthiolus ad Dioſcor.* and by *Bodæus in Theophrast.* It is the Pulp of this Caſſia which is applied to medicinal Uſes, and is call'd the *Medulla Caſſiæ*, *Caſſia extracta*, *Caſſia Cribrata*, *Caſſiæ Atramantum*, and *Flos Caſſiæ*. The Extract is made by paſſing it thro' a Sieve with a Spoon, with the Addition of a little Water. Phyſicians generally order this Extract recent, becauſe it ſoon corrupts, in conſequence of its Diſpoſition to ferment. Hence *Boerhaave*, in his *Elementa Chymicæ*, Vol. 2. claſſes it among the Subſtances which promote Fermentation. The Apothecaries, in order to preſerve this Extract the longer, and prevent its Fermentation, generally add Sugar to it; but by this means its genuine Virtue is loſt. This Extract, when made

from Pods which are fully ripe, is a ſufficiently gentle and innocent Purge; for which Reaſon it is claſſ'd among the beſt of the cholagogue Purgatives. It is exhibited either in the Form of a Bolus, or of a Potion. When recent, and in Subſtance, the Doſe of it, for internal Uſe, is from three Drams to an Ounce; and, in Clyſters, from one to two Ounces. When it is not recent, it may be exhibited internally, from half an Ounce to an Ounce and an half, or two Ounces; and, in Clyſters, four Ounces of it may be uſed. *Schulzius*, in his *Prælectiones de Viribus & Uſu Medicamentorum*, ſpeaks of it in the following manner: "It is purgative," ſays he; "but becauſe it is obſerv'd to weaken the Stomach, it is rarely exhibited at preſent with us: But if the recent Extract is to be uſed, it may moſt properly be exhibited with the Addition of ſome Carminative, ſuch as Aniſe or Fennel. The Doſe is from one Ounce to ten Drams." *Hieronymus Capivaccius*, in his *Præctica Medicina*, informs us, that its Virtues exceed theſe of Manna, as it powerfully evacuates the thin recrementitious Humours, and thoſe which are moderately thick. Beſides, it refrigerates, obtunds Acrimony, moiſtens, and poſſeſſes ſome nutritive Parts. But it is eaſily converted into Flatulencies, which, by diſtending the Veſſels, excite conſiderable Pains. Caſſia, therefore, according to *Rhaſes*, is to be boiled before it is exhibited; ſince, by the boiling, that Part of it is diſſolv'd, which was ſubject to be converted into Flatulencies, as happens in Barley and Beans, which, by being boiled, loſe their flatulent Part. *Rhaſes* alſo ordered Caſſia to be boiled in the Juice of Succory. But if Caſſia is to be exhibited unboil'd, it is to be corrected with Aniſe, Fennel, or Lemon-ſeeds. *Jacobus Duttelius*, in his *Treatatio Medico-præctica de virulenta Purgantium Indole*, informs us, that Caſſia is gently purgative, on account of its ſweetiſh Taſte, and moderately acrimonious Quality. Hence it is highly proper, eſpecially when rightly adminiſtered, to evacuate bilious and acid Humours; ſince it operates, without exciting any violent Commotions, or preternatural Heat. Experience, the moſt powerful and concluſive of all other Arguments, ſufficiently proves, that it is an efficacious Medicine in Diſorders of the Breſt, in ſaline arthritic Affections, in the Stone, in Caſes where the Primæ Viæ are loaded with ſaline Acids; as alſo in catarrhus Fevers, and ſometimes in thoſe of the tertian Kind. With reſpect to the Exhibition of Caſſia, when the Intention is to purge, we muſt obſerve, that it ought to be uſed in a pretty large Quantity, either alone, or with an Admixture of Manna, otherwiſe it operates little or none at all. It is alſo carefully to be adverted to, that Caſſia operates more ſucceſſfully with the Addition of ſome neutral Salt, eſpecially the *Tartarus Tartariſatus*. Beſides, a Decoction of Caſſia is not to be taken at one Draught, but ſucceſſively, and at diſſerent times; and ſome hot Potion is to be uſed after it, leſt it ſhould excite any Uneaſineſs or Vomiting. But hypochondriac and hysteric Patients, thoſe who are afflicted with a Weakneſs of the Stomach and Flatulencies, and ſuch as are ſubject to the Colic, ought carefully to abſtain from Caſſia. Neither is this Medicine by any means to be preſcribed for pregnant Women. *Duttelius*, in the ſame Work, oppoſes *Sennertus*, who, with *Meſue* and *Ætſuarius*, aſſert, that Caſſia may be ſafely uſed by pregnant Women. The Reaſon of his Oppoſition is, that as Caſſia is improper in hysteric Caſes, on account of its flatulent Quality; ſo it ought not to be order'd to pregnant Women, whoſe lower Belly is already diſtended by the Bulk of the Fætus, ſince, by an Acceſſion of new Flatulencies, the Abdomen might be more diſtended, and various bad Symptoms excited. *Caspar Hoffman* informs us, that in pregnant Women it powerfully relaxes the Placenta; and *Foreſtus*, in his *Obſerv. Medic. Lib. 2. Obſerv. 28.* aſſirms, that Caſſia is highly improper for pregnant Women, becauſe it principally evacuates from the Kidneys; in conſequence of which an Abortion is the more to be dreaded. The ſame Author, in *Lib. 10. Obſ. 85. in Scholio*, pronounces Caſſia prejudicial to paralytic Caſes, becauſe it is of too moiſtening a Quality; and, in the ſame Book, *Obſ. 33. in Scholio*, he aſſerts, that it is injurious to the Head, by filling the Brain with Fumes, and by that means inducing a Cataphora. According to *Rondeletius*, the Uſe of Caſſia is not ſafe in cold and moiſt Weather, eſpecially the former, ſince by its too ſtrong emollient Quality, eſpecially when it is recent, it generally excites Diarrhæas, Lienteries, and, at laſt, Dyſenteries. We might poſſibly think, that more weighty Objections could not be made againſt Caſſia, unleſs *Joannes Riſlanus*, a celebrated Phyſician at *Paris*, had aſſerted, that a ſmall Quantity of it proves mortal to ſome Patients. But *Michael Brudewyns*, a learned Phyſician of *Antwerp*, in his *Ventilabrum Medico-theologicum*, refutes this Charge, and tells us, that the Caſſia may certainly be abus'd, yet happy Effects are to be expected from the judicious Exhibition of it. Beſides, in this Caſe, the Intention of *Riſlanus*, ſays he, is to be conſider'd, which is nothing elſe than to caution the Magiſtracy not to allow every one who profeſſes himſelf a Phyſician, to praſtiſe; becauſe moſt Medicines in their Exhibition require great Caution,

tion, Care, and Circumspection. From what has been already said from *Alpinus* and *Bontius*, *Wedelius*, in his Work *De Medicamentorum Facultatibus*, seems to be in the right, when he asserts, that Cassia is a Pectoral, beneficial in nephritic Pains, proper for correcting the Acrimony of the Humours, and, for that Reason, conducive to the Cure of a Gonorrhea. *Fallopins* attests the salutary Use of this Medicine in the last of these Disorders. Some, and among the rest *Bernardinus Ramazini*, in his *Opera Medica & Physiologica*, entirely condemn the Use of Cassia in all Disorders of the Kidneys, because they think it is possessed of a certain Virulence. *Zecchini* also, in his *Consultationes Medicinales*, affirms, that, in Disorders of the Kidneys, Cassia is not altogether safe, unless the Stomach and Primæ Viæ are previously evacuated, either by Abstinence, Vomiting, or Purging; adding this as a Reason, that it was one of the best of the diuretic Medicines. With an Intention, however, to evacuate the Primæ Viæ, he himself recommends Cassia. Hence *Veslingius* seems to have come nearer the Truth, when he asserts, that it, in consequence of the Use of Cassia, the Heat and Impetus of the Urine, which is acrid, are increas'd, and the nephritic Pains by that means augmented, this Accident cannot be charg'd upon the Cassia which is sound and good, but only on such as is corrupted and destitute of its Virtues. Nor indeed is it possible, that a Medicine imported from Countries so remote, and which can hardly be preserv'd for any considerable Time in its native Soil, should long retain its Virtues after it comes to our Hands. The Sentiments of *Veslingius* and *Wedelius*, with respect to Cassia, seem to be just and well-founded, since, from the Practice of the *Egyptians*, and others, it is obvious, that it is a Medicine proper for allaying preternatural Heats, and correcting the Acrimony of the Humours; and since *Borelli*, in his *Observat. Medico-physic. Cent. 3. Obs. 5.* informs us, that Cassia was highly beneficial in allaying and correcting the preternatural Heats attending epidemic and pestilential Fevers; for it has this Advantage attending it, that it resists Putrefaction, and, at the same time, inclines to an acescent Nature. *Caspar Hoffman*, *de Medicamentis officinalibus, Lib. 2. Cap. 7.* pronounces the Use of Cassia safe, so long as it is recent and sweet; and not only informs us, that Head-aches, arising after Meals, cannot be more successfully remov'd, than by the Use of Cassia, and that by its means obstinate Inflammations of the Eyes have been cur'd; but also, in express Words, pronounces it to be a highly beneficial Medicine in preternatural Heats of the Kidneys. But because the Use of it is observ'd to promote a copious Discharge of Urine, I should think it advisable not to prescribe it to Patients who discharge bloody Urine, who have been cut for the Stone, who labour under a Diabetes, or other Disorders of the Parts subservient to the Secretion of the Urine, since, in these Cases, it is not so beneficial, but ought to be abstain'd from. *Fallopins* informs us, "That in preternatural Heats of the Bladder, Cassia is a very improper Remedy; because, in consequence of its diuretic Quality, it conveys to the Bladder small Concretions of Sand, together with a saline and acrid Matter, which augment the Heat, which is more troublesome and uneasy, so long as the Cassia operates, tho' it is afterwards somewhat alleviated by that means." *Vallisneri*, in his *Opere Fisco-medice, Tom. 3.* informs us, "That Cassia and its Pulp are of a refrigerating and moistening Quality, not only when exhibited internally, but also in external Applications; since, in the most violent arthritic Pains produc'd by Heat, the Pulp of Cassia is successfully prescrib'd, and surprisingly alleviates the Pains. But it is commonly thought, that it moistens more powerfully than it refrigerates, which is confirm'd by the large Quantity of hypochondriacal Flatulencies generally produced by using it; for whilst the Humidity undergoes a Change by the Heat, it is converted into Flatulencies, which, as they possess a large Space, distend and relax the Vessels, and by that means create Pains, and sometimes Gripes. Hence Physicians, taught by Experience, generally mix some Carminative with Cassia, in order to prevent the above-mentioned Accidents." To these we may add the Observation of *Paulus Aescapengus*, in his *Medicina Rationalis*, that Cassia is highly prejudicial by exciting Pains of the Stomach and Gripes, when it is exhibited in those Disorders which proceed from a tough and glutinous State of the Bile. But we now return to speak of the Intention with which Cassia was first receiv'd into Medicine, which was to render the Body soluble, and evacuate the Fæces. For this Purpose it is generally prescrib'd two or three Hours before Meals. But *Monardes* assures us, that he had learn'd, from the Experience of many Years, that when thus exhibited, it evacuated very little; for, says he, as it is very weak, it is resolv'd into Vapours, which diffuse themselves thro' the whole Body; and if the Meal is longer deferr'd, it is converted into Aliments. Hence he advises it to be exhibited a very short time before Meals, about half an Hour at most; because, when mixed with the Aliments, it exerts its Virtues in Conjunction with them, and by that means operates more easily, and with less Trouble. But if, continues he, the Intention is not to evacuate, but only to

diffuse Vapours thro' the Kidneys, and the other Parts of the Body, it may be exhibited several Hours before a Meal. *Aloisius Mundella*, in his *Epistolæ Medicinales, Epist. 10. and 26.* gave the same Directions before *Monardes*. But *Laurentius Jonbertus*, in *Tom. 1.* is of another, and, perhaps, a juster Sentiment, when he advises the Pulp of the Cassia to be exhibited in the Morning, in order to render the Body soluble; and not, as most do, an Hour or half an Hour before Dinner: For, says he, the lighter the Medicine is, the more slowly it operates, and the less it is susceptible of an Admixture of the Aliments, by which its languid Energy is easily extinguished. That Cassia may be the more safely used, we must observe, from *Sennertus*, in his *Institutiones Medicinæ*, that because this Medicine is improper, in Cases where the Stomach is weak, and abounds with superfluous Humidity, or where the Intestines are too slippery; when it is to be exhibited for this latter Disorder, a proper Quantity of Rhubarb or Myrobalans is to be added to it; whereas, in a Weakness of the Stomach, it is to be corrected with Cinnamon or Mastich; and, in Flatulencies, with the Seeds of Anise, Fennel, and Carrot. The same Author tells us, that the Medicines which either assist or correct Cassia, are generally mixed with it, from half a Dram to a whole Dram; and that it is less commodiously exhibited in a liquid Form, than in that of an Electuary, or Bolus. To the foregoing Observations we must add those of *Vallisneri*, in his *Opere Fisco-medice*: Twelve Drams, says he, of the Pulp, are exhibited for a Dose. Cassia is also exhibited in Potions, after it is dissolv'd in distil'd Waters, Decoctions, or proper Broths; but it is rarely prescrib'd in this Form, except to those who cannot take a Bolus. The *Venetians* frequently prescribe this Medicine clarified with Whey, so as to lose its nauseous Smell, and disagreeable Sweetness, in which Form it evacuates with Success. The Pulp is also extracted from the Pods, and exhibited in the same Dose, when cut down together with the Seeds, and the small Laminæ which intersect the Pod. This Method of Exhibition is entirely new; and those who follow it assert, that these Laminæ do not prevent Refrigeration, Humectation, and the Evacuation of the Bile, but give the Preparation this Advantage, that by means of these Laminæ it incides and carries off those thick and pituitous Humours, which adhere to the Coats of the Intestines. Thus by the Exhibition of Cassia cut together with its proper Laminæ, they obtain the Evacuation of the Bile, and of other thick and viscid Substances. *Ettmuller* informs us, that the purgative and evacuating Qualities not only of the Pulp of the Cassia, but also of the woody Interstices lodg'd within the Pulp, were first casually discovered; for a Cassia-pod being thrown to an Ape, the Animal was violently purg'd by eating it. An Account of this Observation is to be found in *Fallopins*. *Monardes*, in his *Epistolæ Medicinales*, two Centuries ago, inform'd us, that the Seeds were more effectual for rendering the Body soluble than the Pulp. It does not hold universally, that the Use of Cassia changes the Colour of the Urine into that of red or black. What is already said is sufficient, with respect to the internal Use of Cassia. Externally the Pulp of the Cassia is used in lenitive and resolvent Cataplasms. Thus in arthritic Pains arising from a hot Humour, the following Cataplasm, which is inferior to none, may be applied to the Parts affected:

Take of the Pulp of Cassia, half an Ounce; of the Meals of Barley and Beans, each three Drams; of the Juices of Smallage and Quinces, each six Drams; of red Sanders, half an Ounce; and of the Oils of Violets, Roses, and Lilies, each a sufficient Quantity: Mix up into a Cataplasm.

Cassia, according to *Ettmuller*, bruised or boiled with Nightshade, is an excellent Medicine for anointing the Parts affected in arthritic Pains. It may also be very properly apply'd to Inflammations in the same manner. Cassia, extracted with Spirit of Wine, is used as a Topic for anointing the Parts affected with the Gout. That we may not be ignorant of what has been discovered of the Nature of Cassia by a chymical Analysis, *Boreler*, in his Continuation of *Paulus Hermannus's Cynosura Materiae Medicæ*, informs us, that if the Pulp of Cassia, which easily becomes acescent, is diluted in a sufficient Quantity of Water, and put in a small Vessel for some Months, an essential Salt, like Cream of Tartar, will be precipitated; but that if it be distil'd, it will be converted into an acid Phlegm, and an Oil. According to *Tournefort*, from two Pounds of Cassia, half a Pound of an acid Phlegm, and three Ounces of an insipid Phlegm, may be distil'd. And if this Liquor is farther distil'd, he says, that six Ounces of a volatile urinous Spirit, six Drams of Oil, and about an Ounce of a fixed Salt, are yielded, a Caput Mortuum remaining.

Officinal Preparations from Cassia are the *Cassia Extracta cum vel sine foliis Senæ*, and the *Diacassia cum Manna*; it is also a principal Ingredient in the lenitive Electuary. The Method of making the Extract of Cassia is already describ'd.

Diacassia

Diacassia cum Manna

Take of *Damascus* Prunes, two Ounces; of Violet-flowers, an Handful and an half; of Spring-water, a Pint and an half: Let them boil till half is wasted; and then in the strained Liquor dissolve of fresh Cassia-pulp, six Ounces; of Syrup of Violets, eight Ounces; of the Pulp of Tamarinds, one Ounce; of white Sugar-candy, one Ounce and an half; of the best Manna, two Ounces; and make into an Electuary.

This hath continued the same thro' all the Emendations of the College, unless in the present Omission of the Sugar of Violets, no such Thing being now made. Its Author is, by the *Augustan Dispensatory*, acknowledged to be uncertain. *Zwelfer*, in his *Animadversions* upon it, cautions that it should be made but in small Quantities at a time, as indeed all other Compositions of the like Kind should, lest they grow acid, and ferment, by long keeping. *Fernelius* also gives the like Admonition; but that may be pretty easily prevented, by simmering them over a slow Heat, and stirring all the while with a wooden Spatula to prevent Burning, till they are of a good thick Consistence. It is now wholly neglected in common Prescriptions.

Cassia extracta, cum Foliis Senæ: Extract of Cassia, with Sena-leaves.

Take of the Diacassia, with Manna, two Pounds; of Sena-leaves powdered, two Ounces; of Caraway-seeds, one Ounce; of Syrup of Violets, a sufficient Quantity to mix them together into an Electuary. *Quincy's Dispensatory*.

Cassia; sylvestris; fœtida; siliquis alatis, Plum. Nov. Gen. App. 13. 18. H. Prægn. THE WILD STINKING CASSIA, WITH WINGED PODS, call'd in the *West-Indies* FRENCH GUAVA. *Boerhaave*.

Miller mentions five other Species of the CASSIA. The CASSIA LIGNEA is a Species of CINNAMOMUM, which see.

CASSIBOR, CASSIDBOTT, Coriander. *Johnson. Ru-landus*.

CASSIDA.

Scutellaria, Offic. Buxb. 298. Rivin. Irr. Mon. *Scutellaria aquatica, vulgò Tertianaria dicta*, Herm. Hort. Lugd. Bat. 546. Volck. Flo. Nor. 344. *Scutellaria aquatica, angustifolia vulgaris*, Herm. Flor. 2. 77. *Scutellaria palustris repens cœrulea*, Hist. Oxon. 3. 416. *Cassida palustris vulgatio flore cœruleo*, Tourn. Inst. 182. Elem. Bot. 150. Boerh. Ind. A. 117. Dill. Cat. Giff. 117. Rupp. Flor. Jen. 180. Raii Synop. 3. 244. *Tertianaria aliis Lysimachia galericulata*, J. B. 3. 435. *Lysimachia galericulata*, Ger. 387. n. 6. HOODED LOOSE-STRIPE, Emac. 477. Mer. Pin. 74. *Lysimachia cœrulea galericulata*, Merc. Bot. 1. 49. Phyt. Brit. 71. *Lysimachia cœrulea Galericulata seu Gratiola cœrulea*, C. B. Pin. 246. Raii Hist. 1. 572. HOODED WILLOW-HERB. *Dale*.

This *Cassida* is hardly of any Use in Physic; however, *Camerarius* says, that the Decoction of it is good for the Quinsey. And *J. Baubine* relates, that *Turner* affirm'd, that it was call'd *Tertianaria*, because it cured intermitting Fevers. It is bitter, stinks like Garlick, and gives such a faint Tincture of Red to blue Paper as the common Scordium, and some other febrifugous and aperitive Plants. *Martyn's Tournesfort*.

Boerhaave mentions thirteen Species of this Plant.

CASSINE.

There are two Sorts of the Cassine, which are the third and fourth Species of the ALATERNUS, which see.

Miller calls the Cassine vera *Floridanorum* the South-sea Tea-tree, and the *Perygia* the Cassio-berry-bush.

The *Paraguay*, or South-sea Tea, is accounted by the *Indians* very wholesome, and (as I have been inform'd by several worthy Persons, who resided for several Years in *Carolina*) is the only Physic the *Indians* use; and for which, at certain Times of the Year, they come in Drove, some hundred Miles distant, for the Leaves of this Tree (it not being known to grow at any considerable Distance from the Sea); where their usual Custom is to make a Fire upon the Ground, and, putting a great Kettle of Water thereon, they throw into it a large Quantity of these Leaves; and immediately set themselves round the Fire, and, with a Bowl that holds about a Pint, they begin drinking round large Draughts, which, in a very short time, vomits them severely: Thus they continue drinking and vomiting for the Space of two or three Days, until they have sufficiently cleansed themselves; then they gather every one a Bundle of the Tea to carry away with them, and retire to their Habitations. But these Gentlemen observed something very extraordinary in the Operation of this Plant, which was, that, in Vomiting, it gave them no Uneasiness or Pain; but came away in a full Stream from their Mouths, without so much as declining their Heads, or the least Retching.

VOL. II.

Monfieur Frezier also says, that the *Spaniards*, who live near the Gold Mines in *Peru*, are obliged frequently to drink of the Herb *Paraguay*, or *Mate*, to moisten their Breasts; without which they are liable to a sort of Suffocation, from the strong Exhalations which are continually coming from the Mines.

The same Author also adds, that the Inhabitants of *Lima*, during the Day-time, make much Use of the Herb *Paraguay*, which some call *St. Bartholomew's Herb*; who, they pretend, came into those Provinces, where he made it wholesome and beneficial, whereas before it was venomous. This (he says) is brought to *Lima* dry, and almost in Powder.

Instead of drinking the Tincture or Infusion apart, as we drink Tea, they put the Herb into a Cup or Bowl, made of a Calabash, tipp'd with Silver, which they call *Mate*: They add Sugar, and pour the hot Water upon it, which they drink immediately, without giving it time to infuse, because it turns as black as Ink. To avoid drinking the Herb, which swims at the Top, they make use of a Silver Pipe, at the End whereof is a Bowl full of little Holes; so that the Liquor, suck'd in at the other End, is clear from the Herb. They drink round with the same Pipe, pouring hot Water on the same Herb, as it is drank off. Instead of a Pipe, which they call *Bombilla*, some part the Herb with a Silver Separator, call'd *Apartador*, full of little Holes. The Reluctancy which the *French* have shewn to drink after all Sorts of People, in a Country where many are pox'd, has occasion'd the inventing the Use of little Glass Pipes, which they begin to use at *Lima*. This Liquor, (he says) in his Opinion, is better than Tea: It has a Flavour of the Herb, which is agreeable enough. The People of the Country are so used to it, that even the poorest drink it once a Day, when they rise in the Morning.

The Trade for this Herb (he says) is carried on at *Santa Fè*, whither it is brought up the River of *Plate*. There are two Sorts of it; the one call'd *Yerba de Palos*; and the other, which is finer, and of more Virtue, *Yerba de Camini*. The last is brought from the Lands belonging to the *Jesuits*: The great Consumption of it is between *La Paz* and *Cuzco*, where it is worth half as much more as the other, which is sent from *Potosi* to *La Paz*. There come yearly from *Paraguay* into *Peru* above fifty thousand Arrovas's, twelve thousand Hundred-weight of both Sorts; whereof at least one Third is of the *Camini*, without reckoning twenty-five thousand Arrovas of that of *Palos* for *Ghili*. They pay for each Parcel, containing six or seven Arrovas, four Royals, for the Duty call'd *Alcavala*, (being a Rate upon all Goods sold) which, with the Charge of Carriage, being above six hundred Leagues, doubles the first Price, which is about two Pieces of Eight; so that, at *Potosi*, it comes to about five Pieces of Eight the Arrova. The Carriage is commonly by Carts, which carry a hundred and fifty Arrovas from *Santa Fè* to *Jujuy*, the last Town of the Province of *Tucuman*; and from thence to *Potosi*, which is an hundred Leagues farther, it is carried on Mules.

What this curious Author has observed, on there being two Sorts of this Herb, may very well agree with those two Sorts here mention'd; since both of them are generally supposed to agree in their Qualities, though one is much preferable to the other; therefore I imagine the *Yerba de Camini* is what we call *Paraguay*, or *South-sea Tea*; and the *Yerba de Palos* to be our *Cassio-berry-bush*, the Leaves of which are extreme bitter, especially when taken green from the Tree; and the Taste is hardly to be gotten out of the Mouth for some Hours after chewing a Leaf thereof. But as our Author only saw the dried Herb, he could no more distinguish their Difference, than we can the Tea brought from *China*; I mean as to the particular Trees which produce it. *Miller's Dictionary*.

CASSITA. The *Alauda cristata*, or crested Lark. See ALAUDA.

CASSITEROS, κασίτερος. Tin.

CASSIUS. A celebrated Physician, who lived in the Time of *Celsus*, or a little before him, and is call'd by him, in his Preface, the most ingenious Physician of his Age. He was a Follower of *Asclepiades*, and is the same whom *Galen* and *Scribonius Largus* quote by the Name of *Cassius the Physician*, and who is the Author of the Problems still extant under his Name. Most of the Questions in that little Treatise of his, *M. le Clerc* says, are curious enough, and the Answers to them very ingenious.

CASSOLETA. A Kind of humid Suffumigation describ'd by *Marcellus, de Præf. Remed. Form.*

CASSOUVARIUS. The Name of an exotic Bird, which *Dr. Grew*, in his *Comparative Anatomy*, affirms to be without a Claw.

CASSUMMUNIAR, Offic. aliàs *Rysagon*, Peach. Obs. *Casimunar*, Mars. *Risagon*, Mus. Reg. Soc. *Zedoaria radice lutea*, Breyn. Prod. 2. 105. An *Zerumbeth*, seu *Zingiber rubrum, sylvestre, Ternatense*, Camcl. Syllab. CASUMUNAR. *Dale*.

This is a Root which comes from the *East-Indies*, and has been much in Request of late Years. It is about the Thickness of the little Finger, cut into short Pieces; its Outside encompass'd with Circles like Galingal, of a brownish-yellow Colour, and of a somewhat bitter hot aromatic Taste.

It is not known what Plant this is the Root of; but it is very much commended as an excellent nervous Medicine, and good for the Palsy, Convulsions, Colic, Gripping of the Bowels, and Hysterical Affections. *Miller's Bot. Off.*

This Root is said to be moderately heating and astringent, for which Reason it is recommended for corroborating the Nerves, recruiting the vital and animal Spirits, strengthening the Stomach, and expelling Flatulencies. It is also prescrib'd in Apoplexies, convulsive Motions, Palsies, Tremors, Hysterical and Hypochondriac Disorders, Vertigos, and Gripes. It is highly extol'd for a Loss of Memory, and esteem'd a Corrector to the *Peruvian Bark*. *Albertus Seba*, in his *Rerum naturalium accurata Descriptio*, under the Article *Radix Casminaris Mexicana*, affirms, that it bears a pretty near Affinity to the Root of round Zedoary, which, being cut into Slices, resembles white Jalap; that it is here-and-there rough, with small Fibres, is in part yellow, of the same Taste with Zedoary, and of a cephalic and stomachic Quality. The same Author also informs us, that a strong Tincture of it, prepared with Spirit of Wine, is of singular Service in Apoplexies. A Spoonful may be exhibited internally; and the Parts most immediately affected may be anointed with it. Its distill'd Oil may also be used as a Liniment.

CASSUTHA. The same as CUSCUTA, which see.

CASSYMA, κασυμα, in *Hippoc. Epid. Lib. 5.* is a Shoe, as *Fasius* renders it; or rather, according to *Cornarius*, the Sole of a Shoe; which is the Sense also, that the Scholiast of *Aristophanes* puts upon the Word κασυμα (Cattymata). We find this Term κασυμα in a brief Relation of a remarkable Event, which is the forty-fifth Case in the said Book, and is as follows: 'Ο σκευτής κασυμα κεντῶν ἐ ἐπὶ τῇ πύρῳ ἐξεψεν αὐτῶν. &c. "A Cöbler in *Pityum* ran his Awl thro' the Sole of a Shoe into his Flesh, above the Knee, almost a Finger's Length; no Blood follow'd, and the Wound immediately closed up. Soon after, the whole Thigh swell'd; and the Swelling extended itself to the Groin and Iliac, and the third Day the Man died."

CATASTALTICUM. A barbarous Term for CATASTALTICUM, which see.

CASTANEA. The Chestnut, of which *Boerhaave* mentions three Sorts.

1. CASTANEA, Offic. Raii Hist. 2. 1382. Aldrov. Dendr. 294. *Castanea sativa*, C. B. Pin. 418. Tourn. Inst. 584. Boerh. Ind. A. 2. 178. Jons. Dendr. 117. THE CHESTNUT-TREE. Dale.

Sardinian Acorns, which some call *Lopima*, or *Castana*, (Chestnuts) *Alota*, (in *Athenæus Alota*) and *Jupiter's* Acorns, are of an astringent Quality, and therefore work the same Effects as the Acorns of the Oak, especially the Coat between the Kernel and the Shell. The Kernel is good for those who have drank the Ephemeron. *Dioscorides, Lib. 7. Cap. 145.*

The Chestnut is a handsome beautiful Tree, and frequently planted in Parks for its agreeable Shade. It is thick-set with long, somewhat narrow, and sharp-pointed Leaves, deeply serrated about the Edges. The Catkins are long, thin, and slender; and the Fruit inclosed in a round echinated prickly Husk or Cover, two or three together; having a thin brittle smooth Bark or Coat, of that brown Colour which gives Name to the Chestnut Colour, and under it a tender fine Skin, immediately covering the white Fruit, which is of a pleasant sweet Taste, especially when roasted.

Chestnuts are more used for Food, especially in the warmer Countries, than Medicine; though they are but a windy stuffing Diet. They are accounted restraining and binding, especially the inward Skin, which some pretend to be good for all kind of Fluxes, either of Blood or Humours. *Miller's Bot. Off.*

2. CASTANEA, Ind. Med. 30. *Castanea sylvestris*, Chom. 619. Jons. Dendr. 118. *Castanea sylvestris, quæ peculiariter Castanea*, C. B. Pin. 419. Ger. 1253. Emac. 1442. Mont. Ind. 39. Raii Synop. 3. 440. *Castanea vulgaris*, THE ORDINARY CHESTNUT-TREE, Park. Theat. 1400. THE WOOD CHESTNUT-TREE. Dale.

Chestnuts fatten and nourish, but they bind also, and sometimes generate Wind. The Meal, mix'd with Honey, or the Chestnuts themselves roasted, and work'd up with Honey and Flowers of Sulphur, make a good Electuary for those who spit Blood, or cough much. The Decoction of Chestnuts, or their Shell roasted, allwages the Flux of the Belly; as does also the little Skin under the Shell. An Emulsion made of Chestnuts, Poppy-seed, and Barley-water, allwages the Heat of Urine. Chestnuts are sweet, a little styptic, and redden blue Paper, which shews, that Alum and Sulphur predominate in this Fruit. *Martyn's Tournefort.*

3. *Castanea; humilis; racemosa*. C. B. P. 419. J. B. 1. 127. *Castanea; humilis*. Lugd. 33. *Boerhaave.*

CASTOR, Offic. Schrod. 5. 279. Aldrov. de Quad. Digit. 276. Charlt. Exer. 18. Rondel. de Aquat. 2. 236. Jons. de Quad. 102. Gesn. de Quad. Digit. 309. *Castor five Fiber*, Raii Synop. A. 209. *Fiber*, Bellon. de Aquat. 30. *Fiber five Castor*, Schonef. Ichth. 34. THE BEAVER. Dale.

Castor, Fiber, Canis Ponticus, and κασως, are so many different Names of that Animal which we commonly call a Beaver. This is a swift Quadruped, with five Toes on each Foot, and a narrow Claw on each Toe. It has two remarkable *Dentes Incisores* in each Jaw; its Tail is horizontal, smooth, and without Hair; it is an Animal of the amphibious Kind, lives upon Vegetables, and more especially on the Barks, Branches, Leaves, Fruits, and Roots of Trees, particularly of the Willow. These Animals are found almost every-where, but are produc'd in greatest Plenty in *North America*, and *Russia*. They are not at present seen in *England* and *Wales*, because, according to *Ray*, the Breed was long ago exterminated by the Huntsmen. They were also frequently found in *Pontus* by the Antients, for which Reason the Animal is call'd *Canis Ponticus*. It is now universally believ'd, that the Follicles, containing the Castor, are different from the Testicles; and 'tis, consequently, a vulgar Error, that the Beaver, when keenly pursu'd, pulls off and throws away its Testicles, the supposed Treasure for which its Life is sought.

In the *Mem. de l'Acad. Roy. des Sc.* for the Year 1704. Mr. *Sarasin* gives an anatomical Description of the Beaver, and subjoins the following curious Particulars, with respect to their Method of Living, and Economy.

When the large Inundations are over, the Females return to their Habitations to bring forth their Young; but the Males keep the Fields till the Months of *June* and *July*, and do not return home till the Waters are quite low. Then they either repair the Damage done to their Habitations by the Inundation, or build new ones. They change their Places of Abode principally for three Reasons; first, when they have consumed the Aliments within their Reach; secondly, when their Company is too numerous; and, lastly, when the Huntsmen disturb them too much.

They choose for their Residence a Place abounding in Food, watered with a small River, and fit for having a Lake formed in it. They begin by building a Bank of a sufficient Height to raise the Water to the first Floor of their Habitations. If the Country is level, and the River deep, the Banks are long, but less elevated than in the Valleys. These Banks are ten or twelve Feet thick at the Foundation, and diminish gradually to the Top, where they are generally only two Feet thick. As these Animals cut Wood with a great deal of Ease, they do not spare it, but generally cut it into Pieces as large as one's Arm or Leg, and from two to four, five, or six Feet long. One End of these they drive pretty deep into the Earth, and fix them pretty near each other, interweaving them with small and pliant Twigs, the Vacuities of which they fill up with Clay. They continue this Work in proportion as the Water rises, that they may transport their Materials with the greater Ease. At last they finish these Banks, when the retained Water can reach the first Floor of the Habitation they intend to make. The Side of the Bank which the Water touches is slop'd; and the Water, which gravitates in proportion to its Height, presses it strongly against the Earth, but the opposite Side is perpendicular. They are solid enough to support the Animals which tread upon them; and these Creatures carefully preserve them, repairing the least Openings with Clay. If they observe, that the Huntsmen perceive them, they either do not work at them but in the Night-time, or they abandon the Place.

When the Bank is finished, they labour at their Cottages, which they always found in a solid Manner, on the Brink of the Water, on some little Island, or on Stakes driven into the Ground. These Lodgings are round and oval, and two Thirds of them appear without the Water; but they have the Precaution to leave an Opening which the Ice cannot shut up. Sometimes they build the Lodging entirely upon the Earth, and make Pits five or six Feet deep, which they conduct to the Water. They employ the same Materials for their Lodgings they do for the Banks, except that the Lodgings are perpendicular, and terminated like a Cupola. The Walls are generally two Feet thick. As their Teeth are as sharp as the best Scythes, they cut all the Ends of the Sticks which jet out beyond the Walls, and apply a Covering of Clay and dry'd Herbs both within and without, and employ their Tails in order to secure this Covering.

The Inside of the Lodging is vaulted, and is capable of containing eight or ten Beavers. Without, this Cottage is eight or ten Feet broad, and ten or twelve Feet long, provided it is oval; within, it is four or five Feet broad, and five or six long. If the Number of Beavers is fifteen, twenty, or even thirty, which rarely happens, the Lodging is proportioned to them; and sometimes there are several Lodgings opposite to each other.

Some

Some Missionaries assured Mr. *Sarrafin*, that four hundred Beavers were found in Cottages which communicated with each other. These Cottages are disposed in Stories of different Heights, that they may retire as the Water rises. They have also an Opening different from the Door, and from the Place thro' which they descend into the Water; and it is by this Opening they go to the Water in order to discharge their Excrements.

Those are called Land-beavers which lodge in Caverns made in Earth, raised above the Brink of the Water. They begin to prepare their Lodging by making an Opening, which goes more or less into the Water, according as the Ice may be more or less thick; and they continue this Opening for five or six Feet; but it is no larger than to allow them to pass through it: After which they make a Lake, three or four Foot every Way; into which they descend when they please. Afterwards they cut another Opening into the Earth, which gradually rises in Stories, in order to keep themselves dry when the Water rises. These Openings are sometimes found more than an hundred Feet in Length. These Beavers cover the Places where they lie with Grass. In Winter they make Shavings of Wood, which serve them as Beds.

All these Pieces of Work, especially those made by the Beavers in cold Countries, are generally finish'd in the Months of *August* and *September*, the Time in which they must begin to make Provisions for the Winter. They cut the Wood in Pieces from two or three to eight or ten Feet long. The large Pieces are carried by two or three of these Animals, and the smaller Pieces by one, but in different Roads, that they may not incommode each other. They first use a certain Quantity of it, which floats in the Water; then they lay more above it, Piece above Piece, till their Provision answers to the Number of Animals which design to lodge together: For Instance, the Provision for eight or ten Beavers is twenty-five or thirty Feet square, and eight or ten deep. This Wood is not piled up like that in a Carpenter's Yard, but in such a manner as allows them to take what Parts of it they please, and they only eat those which are soaked in the Water. Before they cut it, they cut it small, and convey it to that Part of the Cottage in which they lie. If they had cut it before they piled it up, the Water would have carry'd it away, or dispersed it.

The Beaver is hunted from the Beginning of *November* to the Months of *March* and *April*, because, at that Season, these Animals are well furnish'd with Hair.

The Anus of the Beaver, situated betwixt the Os Pubis and the Beginning of the Tail, is not, as in other Animals, shut by a Sphincter Muscle, but by a kind of Chink, thro' which both solid and liquid Excrements are discharged; not in the manner of Birds, whose Ureters deposit their Urine in the End of the Intestinum Rectum; but in the Beaver there is a peculiar Duct, terminating in the common Aperture under the Intestinum Rectum: For *Wepfer* distinguishes the Orifice of the Anus from this Chink in the following Words: "In the entire Skin left upon the Pubes there appeared two remarkable Orifices, the superior of which is the Chink under the Os Pubis, and the inferior the Anus under the Tail." According to *Rondeletius*, "The Female Beaver has one common Passage for discharging her Excrements, and bringing forth her Young." On each Side of this Chink, near the Groins of the Animal, whether Male or Female, are two small Bags, the inferior of which is but little, and the superior larger. The smaller of these Bags, being internally covered with a rough, folded, and glandulous Membrane, and opening, by an excretory Duct, into the Place between the Chink and the Anus, which, by Anatomists, is called the Perinæum, is fill'd with an oleaginous yellow Substance, of a Consistence somewhat more liquid than Honey, and of that nauseous Smell diffused by Castor. Hard by the Neck of this Bag or Follicle, in the inferior Part, is a Gland about the Bulk of a Kidney-bean, which being compress'd, there is discharged from its lower Orifice, which is not much larger than the Punctum Lacrymale, a Substance of the Consistence of new Cheese, and which smells like Castor. The other Follicle, lying on the superior Part of this, is larger, in Figure resembling a dry'd oblong Pear, opening by a pretty large Orifice, which admits one's Finger, into the common Chink, and contains a wax-like, yellowish, and friable Substance, of a nauseous and acrid Smell, and which, being afterwards divided into small Portions, of the Bulk of a Pea, or somewhat larger, is called Castor. Sometimes small Stones of different Bulks, of a laminated Structure like Bezoar, and of the Smell of Castor, are probably formed in this Substance, inspissated and concreted, just as the Stones found in the Gall-bladders of other Animals are produced. From both these Follicles, therefore, four Ducts are distributed to the Chink, and open their Mouths or Orifices into it. The large Number of Blood-vessels distributed thro' these Receptacles, arise from the adjacent hypogastric and iliac Vessels, the conglomerate sebaceous Glands form'd of which seem to change the Humours they receive into an unctuous Matter, and throw it into the common Emunctory or Follicule. This Matter, when collected in the larger Folli-

cule, and becoming thick by its Continuance there, constitutes the Castor. In the superior Part of the Chink the Penis of the Male is lodged, in a particular Sinus formed by the Process of the Peritonæum under the two larger Follicules of Castor. The Penis of this Animal is a bony Substance; as in Dogs. The Testicles are situated under the Os Pubis, near the Castor; but it cannot be discovered externally in the Groin, either by the Eye or the Touch, that they are lodged there; and tho' they are situated pretty near the Castor, yet there is no manner of Communication between the former and the latter, nor do they smell like Castor, either when recent or dry'd. But 'tis false, as *Rondeletius* and *Amatus ad Dioscoridem* affirm, that the Testicles adhere to the Spina Dorsi. In Figure they resemble those of a Dog, but are somewhat longer, and less in proportion to the Size of the Animal. Thus also the Epididymis, and all the Vessels subservient to Generation, are not in the least different from those of a Dog. From what has been said 'tis obvious, that the Follicules containing the Castor are different from the Testicles; and, consequently, that it is a vulgar Error, that the Beavers, when keenly pursued for the sake of the Castor, pull off their Testicles, and throw them away, and thus preserve their Lives by losing that for which they are so eagerly sought after. And, in *Faber's Lexicon*, we read from *Horapollus*, that the Egyptians paint a Beaver, when they intend to represent a Man who castrates himself, because this Animal, when hotly pursued, throws away its Testicles, for which it is hunted. *La Hontan*, in his *Nouveaux Voyages dans l'Amerique Septentrionale*, informs us, that these Animals never go far from the Water, in order to prevent their being hunted by Dogs; that they plunge themselves into it upon hearing the smallest Noise; and that they are often more sought after for their Skins than for the Castor: Besides, the Beaver is unfit for affording Diversion, when pursued by a Pack of Dogs. *Diosc. Lib. 2. Cap. 23.* affirms that 'tis false, that they pull off and throw away their Testicles when hunted; adding, as a Reason, "That they cannot be touched, because they are conceal'd." *Pliny*, in *Lib. 32. Cap. 3.* represents *Sextius Niger* as entertaining the same Sentiments before *Dioscorides*. But *Salmasius*, in the *Prolegomena* to his *Exercitationes de Homonymis*, informs us, that it is an Assertion of *Pliny*, and not of *Sextius*, that they adhere to the Spine, and cannot be taken away without destroying the Life of the Animal. But *Pliny* himself, *Lib. 8. Cap. 30.* affirms this spontaneous Castration or Amputation to be real. According to *Wepfer*, this Amputation is, if not impossible, yet always so highly dangerous, that, instead of preserving the Life, it would rather hasten the Death of the Animal, since not only the Testicles, but the Follicules containing the Castor, must be snatch'd away at one Bite, which cannot happen without a violent Hæmorrhage, on account of the large Base of these Parts, and the considerable Blood-vessels lodged in them. This Hæmorrhage is the more fatal, because the Blood in these Animals is highly fluid, and because, during their Pursuit, they have not the Advantage of Dressings and proper Bandage. *Rondeletius*, a Man of great Judgment, seems to have been the first who made the Distinction between the Testicles of this Animal and the Follicules containing the Castor. But, perhaps, he was ignorant, that there were four Follicules, since he only describes two which contain the perfect Castor. "The Beavers," says he, "have two Protuberances in their Groins, one on each Side, inclosed in its proper Membrane, and as large as a Goose's Egg; betwixt these the Penis is situated in the Males, and the Pudendum in the Females. These Protuberances are not the Testicles, but Follicules covered, as I have already said, with a Membrane. In the Middle of each of these Follicules are Ducts, from which a pinguious and serous Liquor issues, which the Beaver itself often sucks out, and licks. With this Liquor it afterwards besmears, as with an Oil, those Parts of its Body it can reach, just as Birds do, especially those trained up for Bird-catching by Fowlers, in which, above the Anus, or in the depending Part of the Tail, there is a Bladder, full of a certain pinguious Liquor like Oil, which they draw out with their Beaks, and with it anoint first their larger Feathers, and then the smallest. This Naturalists affirm to be a Presage of Rain; since Nature prompts the Birds, living in the open Air, thus to guard themselves, that their Feathers, being, as it were, anointed with Oil, may not become wet. That these Protuberances are not the Testicles, may be certainly known from this, that there is no Passage nor Duct from these to the Penis, by which any Humour should be conveyed into its Opening, and discharged: Besides, the Testicles are lodged deeper." Probably also this Liquor serves to defend the Body of the Animal against the Coldness of the Water; for it is acrid, stimulating, and, consequently, heating: It may also contribute to cleanse the Teeth of the Animal, when clog'd with the Gums of the Trees on which it feeds. Their Opinion is, therefore, false, who assert, that, in order to excite a languid Appetite, the Beaver, with its Foot, expresses the Castor from its Follicule, licks it, and swallows it down: It is also false, that the Indians anoint the Snarcs, which they use for

for catching the Beavers, with it. In the *Mem. de l'Acad. Roy. des Sc. Anno 1704.* we are told, that, in *America*, they anoint with this Humour the Nooses intended to catch the rapacious Animals which destroy the Beaver. The commonly received Opinion, that Castor, swallowed by the Beaver, serves to dissolve and incide the Shreds of its Aliments, is considered in the *Commentarii Academiae Scientiarum Petropolitanae*. The Mind amuses itself with curious Conjectures, when our Senses do not enable us to make unexceptionable Experiments. But 'tis obvious, that the Conjecture is groundless, which supposes Castor to derive its Name from the Animal's castrating itself. When we come to inquire into the Origin of these two Errors, that these two Follicles are taken for the Testicles, and that the Animal tears them from itself when hunted; the former seems to arise from this, that these Follicles or Bags are found in the Groins, where one would expect the Testicles; and as for the Animal's tearing out any Part of its Viscera, *Wepfer* thinks this Story first falsely invented by the Huntsmen, either because they saw the Beavers, wearied by their Flight, lick their Groins, or because they themselves fraudulently stole the Castor as a precious Commodity, and endeavoured, under a Pretext of this Amputation, to impose upon their Masters.

Various Parts of the Beaver are applied to different Purposes in human Life: The Skin, in consequence of its Thickness, is an excellent Defence against the Winter Cold; but its Weight is so great, that it is rarely used for any other Part of Dress than Caps and Gloves. *Rondeletius* affirms, that it is highly beneficial to arthritic Patients to wear Shoes made of the Beaver's Skin. It is by no means probable, that this learned Author ascribed any specific antiarthritic Virtue to these Skins, farther than that they defended against the external Cold, and cherished the native Heat; a Circumstance highly beneficial to gouty Patients. Thus also, to whatever Parts of the Body the Beaver's Skin has been apply'd with Success, the good Effects produced by it seem to be owing to its guarding against the Cold, and preserving a due Degree of Heat. *Marius* informs us, that a Cap, made of the Beavers-skin, when worn, surprisingly increases the Memory of the Patient, if every Month he anoints his Head and Spine with the Oil obtained from the Beaver, and twice a Year takes a proper Quantity of Castor; but the Man must have more Credulity than Philosophy who can believe this; tho' the *Jew*, who communicated the Medicine to *Marius*, affirm'd that it was a Prescription of the celebrated King *Solomon*. They who recommend the Hairs of the Beaver for stopping Hæmorrhages of the Nose, and those subsequent to Wounds, must suppose the Hæmorrhage slight, in which Case the Blood may be absorb'd, and consequently stop'd, by any soft Wool or Hairs whatever. The surprising Efficacy ascrib'd by *Francus* to the Teeth of the Beaver, in various Disorders, seems, in all Probability, to be derived from their absorbent Quality, when reduced to a Powder; and, in this respect, they agree with the Teeth of other Animals. We shall not insist on the medicinal Virtues ascribed to the Urine, the Blood, the Runnet, or Gall of the Beaver, since they possess no Virtues but what may be expected from the same Parts of other Animals. Concerning its Flesh, *Rondeletius* informs us, that it is hard, pinguious, resembles Beef, but always smells strong, generates bad Juices, in whatever manner prepared, and that it is best when roasted, with Aromatics sprinkled upon it. According to *Sebizius*, the Huntsmen prefer the posterior to the anterior Part of the Body. The same Author afterwards subjoins, that the Tail is accounted a delicate Dish, and is principally used during *Lent*, when the Catholics may also eat the Flesh of the Beaver. It is variously prepared by Cooks, and dress'd with different Sauces, in order to render it grateful to the Palate. It generates a thick, tough, and phlegmatic Juice, is of difficult Digestion, and, in consequence of its being pinguious, relaxes the Stomach, and creates a Loathing when eaten plentifully. According to *La Hontan*, in his *Nouveaux Voyages dans l'Amerique Septentrionale*, the Inhabitants of *Canada* account the Tail a delicious Dish; and *Bellonius* informs us, that the Inhabitants of *Lorraine* use it during *Lent*, because, when well prepared, the Taste of it almost resembles that of a Lamprey. *Wormius* to the Tail adds the posterior Legs; and *Gesner*, according to *Aldrovandus*, thinks that these Parts are to be prepared in the same manner Eels are. *Francus* informs us, that for Food the posterior Parts of the Animal ought to be pickled in black Broth; but that the anterior Parts are to be macerated for some Days in Vinegar, and then boiled, after which they make an excellent Dish: Or, says he, they may be roasted on a Spit, when stuck with Lard, Cloves, and Lemon-peel. But he directs the following Preparation of the Tail: After separating the first Skin by boiling Water, it is boiled, together with the Feet, for two or three Hours, or till it becomes white, and the second Skin is separated; after which the Tail is to be cut in Slices, and fry'd with White-wine, Ginger, Pepper, Cinnamon, Currans, Almonds, and Saffron. But, among all the various Parts of the Animal, none is so justly celebrated, nor so universally used, as what we call Castor, which is an oleous Substance, resembling a Mixture of Wax and Honey, of

a dark Colour, of a strong and fetid Smell, of a bitterish and nauseous Taste, and found in two Bags or Follicles, situated in the Groins of the Beaver. This Substance is capable of being dissolved in spirituous, oleous, and aqueous Menstruums. It seems to consist of oleous and saline Parts, which have an earthy Principle join'd to them. It even seems to be a Species of Sal Volatile Oleosum, in which a large Quantity of earthy Parts are mix'd. It is imported from various Countries, but in the largest Quantities from *Poland*, *Russia*, the *East* and *West Indies*. That imported to *Dantzick* from *Poland*, *Russia*, and *Prussia*, is generally accounted the best, and is commonly called *Dantzick Castor*. In the *London* and *Edinburgh Dispensatories*, where-ever Castor is to be used, that of *Russia* is prescrib'd. This is equal'd in Goodness by that which is obtain'd from the Beavers of the River *Roan* in *France*, and which is often sold for that of *Dantzick*. That of *Canada* is accounted the worst, because it is almost void of Smell, and that which it diffuses is ungrateful: Hence many, erroneously, believe it to be adulterated. But that which is imported from the *East Indies* is preferred to all the other Species of Castor. *Alb. Seba*, in his *Descriptio Rerum naturalium*, reckons the *Siberian* Castor best; and the other Species succeed it in the following Order: The *Norwegian*, the *Swedish*, and the *Polonian*; but that of *Canada* is, of all others, the worst for medicinal Purposes. But, whatever Country it is imported from, that is esteem'd good which is taken from a full-grown Beaver, has a fetid and disagreeable Smell, an acrid biting Taste, a brownish Colour, and a friable Texture: That which is unctuous and soft, is esteem'd less valuable. According to *Dioscorides*, it is adulterated by mixing Gum Ammoniac and the Blood of the Beaver with the Castor. According to *Matthioli* on *Dioscorides*, it is adulterated by triturating the Kidneys of the Beaver, and stuffing the Follicles with them. In the *Prolegomena* to the *Pharmacopœia Augustana*, we are inform'd, that it is frequently adulterated by cutting and bruising the Liver of the Beaver small, and making it up with the oleaginous Juice of Castor; but that the Fraud may be discover'd by this, not only that the genuine Follicles arise both from one common Source or Beginning, but also from the firmer Consistence and greater Bulk of the Lumps, than the natural Largeness of these Follicles will admit of: Besides, the Smell, in this Kind, is not so strong as in that which is genuine. But the Difficulty of distinguishing genuine from sophisticated Castor is greater than is commonly believed; for that is often thought adulterated, which, in reality, is not; because the Diversity of the Smell and Consistence is often to be ascrib'd to the Climate in which the Beaver lives, the Aliments it uses, and its Age. Besides, according to *Rondeletius*, in his *Historia Piscium*, Tom. 2. Castor, when recent, resembles an Oil; but, when older, it assumes the Colour and Consistence of liquid Honey. But it is a gross and palpable Sophistication, when Membranes, Pellicles, and Fibres, appear intermix'd with the Castor. The Castor is dried in its own Follicles for medicinal Purposes, that, the watery Part being dissipated, its Smell may be the stronger; as also, that it may keep the longer without corrupting. It is better preserved, when entire, than when reduced to a Powder. It may be dried in two manners; either in a Shade, according to *Gesner*; or in the Smoke, by hanging up the Follicles in a Chimney: This latter Method is generally used in the Shops. Without recounting all the fabulous Stories told of Castor, we shall confine ourselves strictly to its medicinal Uses: What Notions, therefore, the Antients entertain'd of its Virtues, we learn from *Dioscorides*, who ascrib'd a heating Quality to it; and recommends not only the internal Exhibition of it, but also its external Use, by Smelling and Fumigation, for provoking the Menses, expelling the Fœtus and Secundines; as also against Inflations, Gripes, Hiccoughs, Poisons, Varices; and for rousing lethargic Patients, however violent their Disorder may be. He also affirms, that the internal Use of it, and Unction with it externally, are serviceable in Tremors, Convulsions, and all Diseases of the Nerves. The same Sentiments are deliver'd by *Pliny* at greater Length, in *L. 32. C. 3.* According to *Matthioli* on *Dioscorides*, *Galen* admitted both the internal and external Use of Castor in Disorders of the Nerves; but, as it is of a heating and drying Quality, he informs us, that it is highly prejudicial in those Convulsions which are produced by a Want of due Moisture, or by Inanition. He also advises it to be abstain'd from in Hiccoughs proceeding from Dryness, Evacuation, or the Stimulus of acrid Humours. But he ascribes a singular Use to it, in Cases where a moist Habit is to be dried, or a cold one invigorated, and render'd hot: Then he adds, "Nor does it prove hurtful to any Part, especially if the Patient is free from a Fever, or does not labour under a very hot, but only a tepid one, such as generally attends a Cataphora and Lethargy. And I have, to many, exhibited Castor, with white Pepper, of each two Scruples, to be drank in Honey and Water; nor did any of the Patients sustain any Injury by it. In a Retention of the Menses, after a moderate Evacuation of Blood from the Vein in the Ankle, I always found Castor exhibited with Pennyroyal, or Calamint, an effectual Emmenagogue, with-

out hurting the Patient. It also evacuates the Lochia; and for all these Purposes it is to be drank in Honey and Water. But by Patients, whose Abdomens are so distended, as scarce to admit of a Cure, by such as labour under Gripes, or a Hiccup, proceeding from cold viscid Humours, or thick kind flatulent Spirits, the above-mentioned Ingredients are to be most advantageously drank in Oxycrate. As Castor is beneficial, exhibited internally, so it is advantageous, when apply'd externally with Sicyonian, or old Oil. It ought by itself to be rub'd into those Parts which stand in need of a greater Degree of Heat. The Steam of it, when laid upon Coals, is also beneficial in moist and cold Disorders of the Lungs, if drawn in in Inspiration. But it is better in Lethargies and Cataphoras, accompanied with a Fever, not to use any of the above-mentioned Oils, but rather to anoint the Head and Neck with Oil of Roses." *Paulus Aegineta*, in *Lib. 7. Cap. 3.* more concisely delivers the same Sentiments. *Alexander Trallian*, above all other Medicines, recommends Castor to lethargic Patients, in *Lib. 1. Cap. 14.* where he makes the following Observations. If the Disorder is malignant and inveterate, shave off the Hair, and anoint the Head with such Substances, as may exasperate and vellicate the Skin, in Conjunction with Castor. Let the Patient also have a Draught, in which Castor is an Ingredient. Let these Measures be taken an Hour before the Accession; for it attenuates, heats, and cherishes the Body, which was become cold, and almost dead. I know, says he, many labouring under a Lethargy, who, by this Remedy alone, have escap'd Death. It is also beneficial, when exhibited by itself; but it is still more so, in Conjunction with Oxymel. If the Patient is full of recrementitious Humours, it ought to be exhibited with some purgative Medicines, especially Scammony. But one Scruple of Scammony, or a little more or less, according to the Strength of the Patient, is a sufficient Quantity for two Scruples of Castor. *Hippocrates de Morb. Mul. Lib. 1.* among other Medicines, recommends Castor for promoting the Purgations of Child-bed Women; and in his Book *de Natura Muliebri*, he recommends it for provoking the Menfes. In his Treatise *De Morb. Mul. L. 1.* he prescribes it for expelling the Fœtus. Hence in his Work *De Morb. Popul.* he affirms, that Castor allays Pains of the Head arising from the Uterus, because it removes those Disorders of the Uterus, that is, Suppressions of the Menfes, which are generally accompanied with Head-akes. That among the antient Physicians the Empirics made frequent Use of Castor, may be seen in the Preface. *Aquarius*, in his *Meth. Medend. L. 6. C. 9.* informs us, that Castor is a powerful Remedy in all inveterate Disorders. *Vegetius, L. 3. C. 24.* says, that in his Days the Farriers used the Powder of Castor internally, mix'd with Clysters, and in Ointments, for Cattle seiz'd with Spasms of the Nerves. From what has been said, 'tis sufficiently evident, that the Antients acknowledg'd the heating Quality of Castor. This seems to be evident, from *Hippocrates, Epidem. L. 5.* where we have an Account, that the Wife of *Aspasius*, in a violent Pain of her Teeth and Jaw, perceived her Pain mitigated by keeping Castor and Pepper in her Mouth. Now 'tis known, that acrid, heating, and almost caustic Substances, generally prove beneficial in Cases of this Nature. This same Doctrine is confirmed by this, that, according to *Aldrovandus*, *Avicenna* affirms a Mixture of Sweet-flag and Pepper to be an excellent Succedaneum to Castor; and says, that a Dram of Castor, mix'd with Wine, is an excellent Medicine, where stimulating Substances, and such as put the Humours in a Commotion, are requir'd, in order to expel the Poison convey'd by the Bites of venomous Animals. The Disorders against which Castor is used by the Moderns, are at Length recounted by *Ettmuller*: He, therefore, recommends it in painful Disorders of the Nerves and Head; in Dulness of the Senses; in Lethargies, and drowsy Disorders; in Palsies, and Apoplexies; in Epilepsies, and all convulsive Disorders, whether external or internal; as also in Aphonies and Vertigos; and the Reason he assigns for its Efficacy in these Cases is, that it rouses the torpid and languishing animal Spirits. He also asserts, that it is an excellent carminative Medicine in flatulent Colics, hysteric Disorders, and the Fits with which they are attended. He recommends it likewise in Cases where the Primæ Viæ are loaded with peccant Acids; in a Tinnitus Aurium; in a convulsive Asthma; in Epilepsies, arising from Disorders of the Uterus; and in other Indispositions of that Organ; but more particularly for expelling the Fœtus and Secundines; provoking the Menfes, when either entirely suppress'd, or flowing with Difficulty; and various Disorders of the Abdomen; for alleviating the Pains of Women after Child-birth; and for evacuating the Lochia. He also thinks, that Castor is singularly beneficial, not only as a Preservative against Small-pox, Measles, and exanthematous Disorders, but also in promoting their Eruption. He affirms, that nothing is more conducive to the Cure of lethargic Disorders than Castor, when a Vomit is previously exhibited, or when it is taken with proper Purgatives, such as Scammony. Externally, according to the same Author, a Sponge dipt in Vinegar, in which Castor is

dissolv'd, and apply'd to the Nostrils, rouses lethargic Patients, and those who are rendered drowsy by the narcotic Steams arising from Coals, Ale, or Wine-cellars. In Palsies, griping and flatulent Pains of the Abdomen, such as the Colic, and in hysteric Disorders, it is frequently apply'd externally to the Parts affected. Hence also it is generally added to those Clysters intended to stimulate and make a Revulsion in apoplectic and epileptic Disorders. In a Tinnitus, and the like Disorders of the Ear, it is an excellent Remedy, if wrapt up in Cotton, and introduced.

Rondeletius, in his Book *De Ponderibus*, affirms, that Castor is an excellent Remedy in the most violent Disorders of the Ears. *Hoffman*, in his *Clavis Sebree*, recommends the following Medicine in Spasms, and assures us, that it will not disappoint the Hopes of the Physician.

Take of the best Wine burnt, half an Ounce, and infuse in it two Drams of Castor cut down. The Method of using this Remedy is to anoint the Spine with it.

According to the same Author, Water distil'd from Swallows, with an Addition of Castor, is of singular Service when apply'd externally in a Tremor of the Parts. *Borelli*, in his *Observat. Medico-physicæ, Cen. 1. Obs. 52.* affirms, that the above-mentioned Mixture, recommended by *Trallian*, of Scammony and Castor, exhibited in two Doses, and drank in Oxymel, exerts the desired Effect in the Cure of a Lethargy. And *Forestus*, in his *Observat. Medic. L. 10. Obs. 92. in Schol.* ascribes a surprising Efficacy to Castor, in Palsies of every Kind. In the *Acta Medicorum Berolinensium, Dec. 2. Vol. 10.* we are told, that Castor is a Medicine singularly powerful in the Cure of Diseases incident to Women. But *Hoffman*, in his Treatise *De prudenti Virium Medicamenti Exploratione*, tells us, "That for several Ages past Castor has been thought an antihysteric Specific, as if in a Moment it sooth'd and quell'd the Com-motions of the Uterus. But," continues he, "if this Remedy was possess'd of such signal Virtues, why does this Disorder prove so obstinate and chronic, as to afflict the miserable Patients for several Years? It is certain, that by the Subtlety of its Effluvia, and its lenitive sulphureous Quality, it sooths the Spasms, and consequently alleviates the Pains: But this happy Effect lasts only for a short time; for it by no means removes the Cause, which is deep-seated in the Nerves, and particularly rooted in the Hypochondria; so that quite different Measures are to be taken, if we would remove this obstinate Disorder." From what has been said, we see the Antients recommended Castor in the same Disorders for which the Moderns prescribe it; for it consists of stimulating, and consequently heating and drying Parts, and is of an alkaline Nature. It therefore appears to be a Remedy excellently adapted to the Cure of those cold Diseases which arise from Acidity, too great a Relaxation of the Solids, and a languid State of the pituitous Humours. But where the Vessels require an additional Stimulus, and where Obstructions, arising from the preceding Causes, call for inciding and resolving Medicines, Castor proves an excellent Remedy. For this Reason it is beneficial in Cachochymies, and hypochondriac and hysteric Disorders, which depend upon the languid State of the Vessels, and circulating Fluids. But Castor proves prejudicial to Patients for whom heating Medicines, and such as increase the Motion of the Fluids, are improper. So far is it from being beneficial to all Patients promiscuously, who labour under the same Disease. Hence 'tis obvious in what Sense it may be call'd cephalic, antipoplectic, antiepileptic, antiparalytic, carminative, uterine, antihysteric, antihypochondriac, nervous, arthritic, and antispasmodic. According to *Stenzelius*, in his *Toxicologia*, Castor is neither an uterine, nor an antispasmodic Specific, but a resolvent antacid Medicine, equally beneficial to Men and Women, who labour under preternatural Relaxations of the Solids, or an acid and serous Dyscrasy. From these Considerations we are to account for the various Effects, sometimes salutary, and sometimes hurtful, produc'd by the promiscuous Use of Castor in Disorders of the Head, Uterus, and Intestines. *Hippocrates* is, therefore, to be understood in a limited Sense, when in the seventh Book of his *Epidemics* he tells us, that Castor removes Pains of the Head arising from Disorders of the Uterus. *Hoffman de Remed. benign. Abusu*, tells us, that not only Physicians, but the common People, and Nurses, know how celebrated a Medicine Castor is, since in all convulsive and spasmodic Disorders they have recourse to it as to an infallible Arcanum. It is well known, that a promiscuous and indiscriminate Exhibition of the Preparations of Castor has produc'd very unlucky Consequences. Thus they have been known exhibited in hysteric Disorders, where, indeed, by their Means, the Cardialgia and Spasms of the Præcordia at first seem'd to be diminish'd, but they continued the longer. But as soon as the Primæ Viæ have, by mild and balsamic Laxatives, been clear'd of the peccant Load of Humours, the Pains have forthwith ceas'd. It is also known, that Castor, exhibited frequently and copiously to Women in Child-bed, has left a considerable

Torpor of the Head, and render'd their Sleep uneasy and turbulent. Since, from what has been said, 'tis obvious, that those are in an Error who seek for a specific Virtue in Castor, not only against the Diseases of Women, but also against any Disorders whatever, and since 'tis certain, that the unseasonable Exhibition of this Medicine has produced rather bad than good Effects in the human Constitution, we must conclude, that *Zwelfer* runs counter to Experience, when in the *Pharmacopæia Regia* he asserts, that the Smell and external Applications of Castor are beneficial to hysteric Women; but that this Medicine rather proves hurtful, when exhibited internally. *Hoffman*, in his *Clavis Schröder*, affirms, that *Zwelfer's* Assertion is contradicted by Experience, since 'tis certain, that in hysteric, or rather hypochondriac Fits, nothing is more efficacious than Castor, both internally and externally used. But each of these Authors may have had Experience on his Side; for hysteric Fits, or spasmodic Contractions of the Uterus, are remov'd by Substances, whose Smell is fetid, and disagreeable to Nature. Castor, apply'd to the Nostrils in the Paroxysm, performs its Office, by deriving the Spirits from the Part contracted. Nor in this Case can the Use of Castor be said to be hurtful to those, for whom the Use of heating Medicines internally would be improper, since the Stimulus convey'd to the Nerves by the Smell lasts little longer than the immediate Application of the Medicine. But if Castor was internally exhibited to such Patients, it would prove hurtful, by rarefying the Humours too much, throwing them into Commotions, and producing dangerous Evacuations of Blood, by which *Francus*, according to *Marius*, in his *Castorologia*, observ'd Abortions to be caus'd. From Cases of this Kind *Zwelfer* probably drew his Sentiment, that Castor was prejudicial to hysteric Patients. It were to be wish'd, that he had wrote less generally; since, when speaking of the *Pilulæ de Cynoglossa anodynæ*, he leaves out the Castor; because, says he, "It is a Composition intended not for one Disorder, or for hysteric Affections alone, but for many other Diseases, in which Castor is improper. such as an immoderate and too long continued Discharge of the Menfes, in which Case Castor rather does Harm than Good." In the mean time, when Women, subject to hysteric Fits, suffer by a languid and inactive Mucus, the internal Use of Castor is not altogether improper for them; for, as we have already observ'd, it is an excellent Remedy in Diseases arising from a cold Cause, by stimulating, heating, and resolving. Besides, *Bartholine de Medicina Danorum Domestica* observes, that some Women are reliev'd by the Smell of Castor, who are injur'd by its internal Use. And according to *Schulzius*, in his *Prælectiones*, the illustrious *Stahl*, and the other Authors there quoted, every-where almost condemn the internal Use of Castor. Besides the Methods of using Castor externally already related, it is also mixed with Ointments and Plaisters. It is also exhibited internally in Powder, in Pills, sometimes in Electuaries, and in a liquid Form; in Essences, for Instance, and Spirits. The largest Dose is one Dram. Castor, according to *Marius*, in his *Castorologia*, is apply'd externally to the Head for strengthening the Memory, because it opens Obstructions, and by procuring a free Circulation of the Humours thro' the Vessels, assists the Secretion of the Spirits. Castor, according to the same Author, is used for destroying Lice; because either by its Smell, or its Acrimony, it kills them. This Medicine seems to be rank'd in the Class of Antidotes, because, by heating, it increases Perspiration, which is serviceable either by expelling the poisonous Matter, or by resisting the malignant Miasmata, and hindering them from easily insinuating themselves into our Bodies. Castor is said to correct Opium, because it infringes its Virtues; for, as has already been observ'd, it resists a Propensity to Sleep. It is mixed with Purgatives, in order to promote their Operation, and with a View to incite and evacuate thick Phlegm; for when exhibited by itself in a pretty large Dose, it operates as a Purgative. But the principal Use of Castor, when mix'd with Cathartics, is to moderate the Virulence of the more drastic Sorts, and to make them act with less Violence. Thus Castor, mix'd with white Hellebore, renders its Operation, both as an Emetic and Cathartic, much milder than it is without it.

Avicenna and *Matthiolus* agree, with some other Authors, that Castor, when grown old, black, and putrid, becomes poisonous, insomuch that it brings on Madness, attended with a swell'd Tongue, and a raging Fever, which frequently puts an End to the Patient's Life in one Day. The Remedies for this Disorder are, to provoke Vomiting by plentiful Draughts of Hydromel and Butter; and afterwards to take Diamoron, or Juice of Lemon or Citron with Sugar. The parch'd Seeds of Coriander, taken in the Quantity of two Drams, are also recommended as an Antidote to this Poison.

If we reflect, that when Castor, which is an unctuous animal Substance, putrefies, it must necessarily grow rancid, alkaline, and highly acrimonious, we shall have some Reason to believe, that, thus circumstanc'd, it may act as a Poison; and, in such a Case, it seems, that Acids, together with Substances

capable of obtunding such an Acrimony, as Butter, should be a proper Remedy. Hydromel, therefore, and Butter, with the Acids mentioned above, appear, in this Case, to be capable of doing much Service.

The *Axungia Castorei* is a soft unctuous Substance, contain'd in two Bags situated just below the Follicles which contain the Castor. It is esteem'd emollient and penetrating, and consequently proper in Cases where indurated Substances are to be soften'd, and Obstructions open'd. For this Reason, according to *Ettmuller*, it is used in Disorders of the Brain, in Palsies, and the Atrophies arising from them; in Tremors of the Joints, and other painful Disorders of the Nerves; for these Intentions the Parts affected are anointed with it. For the same Reason the Abdomen is order'd to be anointed with it in convulsive Disorders, Colics, hysteric Fits, and Gripes after Childbirth. In the *Memoires de l'Academie Royale des Sciences*, for the Year 1704. we are inform'd, that the Indian Women anoint their Hair with it by way of Ornament.

Spirit of Castor.

Take the best *Russia* Castor, four Ounces; Flowers of Lavender, one Ounce; of Sage, Rosemary, each half an Ounce; Cinnamon, six Drams; of Mace and Cloves, each two Drams; Spirit of Wine, three Quarts: Digest, and draw off the Spirit in a Retort with a Sand-heat.

This is exactly in the former Dispensatory of the College; and is a much better Medicine for many Purposes, than the Tincture of Castor, because it is much pleasanter in taking, both to the Sight and Taste, but it is not so much used. It is also better for the Aromatics, which make it an extraordinary Cephalic, and good in all Distempers whose Seat is upon the Nerves; unless in hysteric Cases, and then the Tincture may be preferable, because it is most fetid. This Spirit may be given from five to thirty or forty Drops in any convenient Vehicle, either to Children in Convulsions of any Kind, or to grown Persons in Epilepsies, Palsies, Head-akes, and all Complaints from the same Origin; and, according to the Exigence of the Case, it may be repeated two, three, or four times a Day.

Tincture of Castor.

Take *Russia* Castor, half an Ounce; Spirit of Castor, half a Pint: Let them digest ten or twelve Days; then decant the clear Tincture, and keep for Use.

The Remainder, which is thick, of this Tincture, may be kept for the compound Bryony-water; as indeed may all the Skins, and membranous Parts, which are left in powdering, making proper Allowance for Strength. There are few so honest to make this with the Spirit of Castor, but generally do it with Spirit of Wine. It is good in all Intentions as the Spirit, and given in the same Doses; but it is somewhat more unpalatable, and gives any aqueous Vehicle a disagreeable milky Hue. *Quincy's Dispensatory*.

The Tincture of Castor, in the *Edinburgh Dispensatory*, is prepared in a somewhat different manner from the preceding, and is order'd to be made thus:

Take of *Russia* Castor, an Ounce and an half; Salt of Tartar, two Drams; rectified Spirit of Wine, a Pint: Digest them together, in a gentle Heat, for four Days; and afterwards strain off the Tincture.

The Addition of the Salt of Tartar is here well suited to unlock the resinous Texture of the Castor; by which means the Menstruum will take up much more of the Ingredient than otherwise; and not leave so large a Bottom, as when Spirit of Castor, if ever that be applied for this Purpose, or Spirit of Wine alone, is used to extract the Tincture.

Compound Oil of Castor.

Take of Castor, Storax, Galbanum, Euphorbium, Opopanax, Cassia-wood, Saffron, Carpobalsam or Cubebs, Spikenard, and Costus, of each three Drams; Cyprus, Schœnanth, long and black Pepper, Savine, and Pellitory, of each two Drams and an half; of ripe Oil, four Pounds; of Canary, two Pounds: Boil all these, excepting the five first, after due Preparation for that Purpose, gently in the Oil and Wine, until the Wine is evaporated. In the mean while dissolve the Galbanum, Opopanax, and Euphorbium, first beaten small, in Part of the same Wine, which is to be kept on Purpose. After they are strained, let them be carefully mixed, by putting them to the Oil pressed out, and standing over the Fire, deliberately while hot, and briskly stirring them about with a wooden Spatula. Lastly, stir in the Storax and Castor powdered.

This

This is ascribed to *Jacobus de Manlius*, and is in the *Augustan* and first Dispensatory of the College; but this somewhat varies, both in the Proportions of Ingredients, and in the Manner of Preparation, yet the Alterations are of no great Consequence, especially as the Composition hath of late been but little, if ever, wrote for, or made.

CASTOR PILLS.

Take *Russia* Castor, one Dram, Salt of Amber, half a Dram, Balsam of Peru, a sufficient Quantity to make into twenty-four Pills.

These are good in all nervous Distempers in either Sex, whether the Origin be in the Head or Uterus: Five may be taken two or three times in a Day, and continued as there is Occasion. *Quincy's Dispensatory*.

CASTRATIO. Castration.

The Business of our Art is to reduce Bodies from a preternatural to their natural Sense; but Castration professes the contrary. However, because we are sometimes compell'd by our Superiors against our Will, to perform this Operation, we shall here very briefly give some Directions how it may be done. There are two Ways of Castration, one by Collision or Crushing, and the other by Exsection. The first is performed on Infants, who are placed in a Vessel of warm Water, in order to relax their Bodies; which being sufficiently done, the Testes are compressed and crushed with the Fingers, till they are quite dissolved, and are no longer perceivable by the Touch. In the Method by Exsection, the Child is placed on a Table in a reclining Posture, when the Surgeon takes hold of the Scrotum, together with the Testes, with his Left Hand, and having disposed them in a right Situation, he makes two strait Incisions with a Knife, one near each Testicle; the Testes starting forth, he first strips them of their Integuments, and then cuts them off, leaving only a very small Continuity of the natural Vessels. This Method is preferable to Collision; for those who have suffered Castration by Collision are sometimes inclined to libidinous Embraces, some Part of the Testes, as it is probable, remaining after Collision. *P. Ægineta, Lib. 6. Cap. 68.*

The Operation of Castration was formerly, in *Europe*, much more frequent than at present; but, in the *East*, it is yet much in Vogue, either as a Punishment, or for the Convenience of great Men, whose Jealousy will not permit Persons possessed of their Virility to approach their Women.

Some there have been, whose Profusion of Enthusiasm, and Minuteness of Understanding, have prevailed on them to undergo this Operation voluntarily, thereby paying no great Compliment either to their Continence or Religion. *Origen* is said to have been one of these; but I hope it is not very likely, that our modern Devotees should follow his Example, who seem to be neither more nor less attached to Pleasures, than their less ostentatious Neighbours.

At present Castration is never performed, unless in the utmost Exigence; generally when an incurable cancerous Disorder in the Testicle, or a Sarcocoele, renders its Extirpation indispensably necessary.

Mr. Sharp has given a distinct Account of the Method of performing this Operation in a Sarcocoele, and has taken Notice of some Circumstances necessary to be considered, in order to form a Judgment when it is proper to be perform'd, and when not. *Le Dran* has, also, given a remarkable Case relative to this Subject.

But before I proceed to give a farther Account of Castration, I must remark, that *Aëtius, Tetrabibl. 4. Serm. 1. C. 122.* informs us, that Castration stops the Progress of a Leprosy; and, upon the Authority of *Archigenes*, that Eunuchs are seldom seiz'd with this filthy Distemper. If the last related Circumstance is true, it lays a Foundation for a Suspicion, that the antient Leprosy is more nearly ally'd, than is generally allow'd, to the Pox of the Moderns.

This is one of the most melancholy Operations in the Practice of Surgery, since it seldom takes Place but in Disorders, into which the Patient is very subject to relapse, viz. those of a Scirrhus, a Cancer; for under most of the Symptoms described as rendering it necessary, it is absolutely improper; such as a Hydrocele, Abscess of the Testis, an increasing Mortification, or what is sometimes understood by a Sarcocoele; of which last it may not be amiss to say a Word. In the utmost Latitude of the Meaning of this Term, 'tis receiv'd as a fleshy Swelling of the Testicle itself, call'd likewise Hernia Carnosa; or in some Enlargements, such as in a Clap, more frequently Hernia Humoralis; but, generally speaking, is considered as a fleshy Excrecence, form'd on the Body of the Testis, which becoming exceedingly hard and tumefied, for the most part, is supposed to demand Extirpation, either by burning away the Induration, or amputating the Testicle: But this Maxim, too precipitately received, has, I apprehend, very much misguided the Practitioners of Surgery.

In order to conceive better of the Distinction I am going to make, it must be remembered, that what is called the Testicle, is really composed of two different Parts; one glandular, which is the Body of the Testis itself; and one vascular and membranous, known by the Name of Epididymis, which is the Beginning of the Vas Deferens, or the Collection of the Excretory Ducts of the Gland.

Now it sometimes happens, that this Part is tumefied, independent of the Testicle, and, feeling like a large adventitious Excrecence, answers very well to the Idea most Surgeons form of a Sarcocoele; but not being aware of the different Nature and Texture of the Epididymis, they have frequently confounded its Disorders with those of the Testicle itself, and equally recommended Extirpation in the Induration of one or the other. But without tiring the Reader, says *Sharp*, with particular Histories of Cases relating to this Subject, from diligent Inquiry I have collected, that all Indurations of the glandular Part of the Testicle, not tending to Inflammation and Abscess, generally, if not always, lead on to Scirrhus and Cancer; whereas those of the Epididymis seldom or never do. It is true, in spite of internal or external Means, these last often retain their Hardness, and sometimes suppurate, but without much Danger in either Case. 'Twill not be hard to account for this Difference of Consequences, from Tumors of seemingly one and the same Body, when we reflect, how much it is the Nature of cancerous Poisons to fix upon the Glands, and how different the Epididymis is from a Gland, tho' so nearly in the Neighbourhood of one.

I would not have it supposed from what I have said, that the Epididymis never becomes cancerous; I confess, says he, it may, so may every Part of the human Body: But I advance, that it rarely or never is so, but from an Affection of the glandular Part of the Testicle first, which indeed seldom fails to taint, and by degrees to confound it in such a manner, as to make one Mass of the two.

Before we castrate, it is laid down as a Rule to inquire, whether the Patient has any Pain in his Back, and in that Case to reject the Operation, upon the reasonable Presumption of the spermatic Vessels being likewise diseased; but we are not to be hasty in this Determination; for the mere Weight of the Tumor, stretching the Cord, will sometimes create the Complaint. To learn the Cause, then, of this Pain in the Back, when the spermatic Cord is not thickened, let your Patient be kept in Bed, and suspend his Scrotum in a Bag-truss, which will relieve him, if disorder'd by the Weight only; but if the spermatic Cord is thickened or indurated, which Disease, when attended with a Dilatation of the Vessels of the Scrotum, is described by the *Latins* under the Name of *Ramex*, (though it is more now known by the *Greek* Appellations Circocoele and Varicocoele) the Case is desperate, and not to be undertaken.

But supposing no Obstacle in the way to the Operation, the Method of doing it may be this: Lay your Patient on a square Table of about three Foot four Inches high, letting his Legs hang down, which, as well as the rest of his Body, must be held firm by the Assistants. Then with a Knife begin your Wound above the Rings of the abdominal Muscles, that you may have Room afterwards to tie the Vessels, since, for want of this Caution, Operators will necessarily be puzzled in making the Ligature; then carrying it through the Membrana Adiposa, it must be continued downwards, the Length of it to be in proportion to the Size of the Testicle. If it is very small, it may be dissected away without taking off any Part of the Scrotum; but *Sharp* is not very fond of this Method, because so much loose flabby Skin is subject to form Abscesses afterwards, and very frequently grow callous. If the Testicle, for Instance, weigh twenty Ounces; having made one Incision about five Inches long, a little circularly, begin a second in the same Point as the first, bringing it with an opposite Sweep to meet the other in the inferior Part, in such a manner as to cut out the Shape of an Oval, whose smallest Diameter shall be two Inches: After this, dissect the Body of the Tumor, with the Piece of Skin on it, from the Scrotum, first taking up some of the Blood-vessels, if the Hemorrhage is dangerous. Then pass a Ligature round the Cord, pretty near the Abdomen; and if you have Space between the Ligature and Testicle, a second about half an Inch lower, to make the Stoppage of Blood still more secure. The Ligatures may be tied with what is called the Surgeon's Knot, where the Thread is passed thro' the Ring twice: This done, cut off the Testicle a little underneath the second Ligature, and treat your Patient as in other fresh Wounds.

Sharp says, he once castrated a Man, whose Testicle weighed above three Pounds, where some of the Vessels were so exceedingly varicous and dilated, as nearly to equal the Size of the humeral Artery; however, he took up two or three of the most considerable, and pursued the Operation, cutting away near Three-fourths of the Skin, by which means he avoided a dangerous Effusion, as, by dividing the Vessels before they were much ramified, he had fewer Ligatures to make:

make: The Success answered the Design, and the Patient survived the Operation and Healing of the Wound; but the cancerous Humour, falling on his Liver some time after, destroy'd him. In large Tumors, such as the last-mentioned, it is very much to be advis'd to cut away great Part of the Skin; for, besides that the Hæmorrhage will be much less in this Case, and the Operation greatly shortened, the Skin, by the great Distention, having been render'd very thin, will, great Part of it, if not taken away, sphacelate, and the rest be more prone to degenerate into a cancerous Ulcer.

It may be observ'd, says our Author, I do not, in order to avoid wounding the spermatic Vessels, recommend pinching up the Skin before the Incision, and afterwards thrusting the Fingers between the Membrana Adiposa and the Testicle, to tear the one from the other; the first is not dextrous, and the other is cruel; and both of them, in *Sharp's* Opinion, are calculated to prevent what there is little or no Danger of. *Sharp*.

Authors say, that when the spermatic Vessels are swelled above the Ring of the Musculus Obliquus in a Sarcocoele, Castration ought not to be performed. This Law should not be general; for we have seen many who have been cured by making a Ligature higher than the Ring, when the spermatic Vessels were neither stuffed nor swelled above it. It depends upon a Number of Observations to instruct us, and to state how far we may carry our Ligature with Safety.

Since we can trace the spermatic Vessels, between the Coats of the Peritonæum to their Origin, we have Permission, I think, says *Le Dran*, to make the Ligature above the Swelling, be it as high as it will. But two Things require a particular Attention: First, if the Ligature is made very high, an Inflammation of the Peritonæum, and consequently of the whole lower Belly, must be apprehended after the Operation, which destroys the Patient. Secondly, if the Swelling of the spermatic Vessels extends very high, suppose the Patient recovers by the Operation, he perishes some time after, because that Part of the spermatic Vessels which remains sound, will tumefy in the End, and render the Distemper incurable. Mr. *Marechal* told us at the Hospital, that he had often seen it, and this is to the Purpose of our present Patient. The following Observation may be of some Use in parallel Cases.

On the 6th of April 1726, a Man was brought to the Hospital, who had the Right Testicle and the spermatic Vessels very much tumefied for nine Months, at which Time his Distemper began, as he said, by a Strain. This Testicle grew hard, and gradually increased, till it was bigger than a Man's Fist. The spermatic Vessels were swelled above four Fingers Breadth beyond the Ring of the Obliquus Externus, and were as thick as a Man's Thumb.

To avoid performing an Operation which seemed to be dangerous, I ordered emollient Cataplasms to be applied to it, for the Space of three Weeks, anointing the Testicle, and spermatic Vessels, with Unguentum Neapolitanum, and fomenting them with emollient Decoctions. Mr. *Burette*, Physician of the Hospital at that time, neglected no internal Medicines, that might dissolve or mollify the Hardness; but all our Care was useless. In three Weeks, I felt a Fluctuation in the Body of the Testicle, which I opened, in Hopes that, after the Evacuation of the Pus, the spermatic Vessels might relax with greater Ease. I found about an Egg-shell full of purulent Scrology, scattered between the Testicle, and the Membranes of the Scrotum, and white Pus formed in the Body of the Testicle. The Wound was dressed the first time after the usual Method, and the Cataplasms were continued.

The Tumefaction of the spermatic Vessels diminished one Half, but the Wound took an ill Turn, a Fungus arising within it in the Shape of a Carcinoma; a Fungus in which the Body of the Testicle was inclosed. Mr. *Marechal* being come to the Hospital, Messieurs *Guerin*, *Gerard*, and *Morand junior*, came with him, and examining the Distemper together, we concluded, that, since the Patient would certainly die, it was better to hazard an Operation, whose Event was uncertain, than suffer him to perish without attempting the Cure; and therefore I performed it.

When I had divided the Ring, and the Muscles of the Abdomen along the spermatic Vessels, whose Magnitude discovered their Progress, I made a Ligature upon them, four Fingers Breadth above the Ring, as high as the Spine of the Os Ilion, where the Hardness ended.

The Patient being dressed, we examined that Part of the spermatic Vessels I had taken off, which was as thick as a Man's Finger in its whole Extent, hard, and of different Colours, so that the Artery was not to be distinguished from the Veins.

The Patient was twice bled the Day of the Operation, and again in the Night; but, notwithstanding this, an Inflammation seized the Abdomen, with excruciating Pains, and he died on the sixth Day.

I opened the Body, and found an inflammatory Inflation

throughout the whole Abdomen, and the spermatic Vessels varicose above the Ligature, but without Hardness.

R E M A R K.

This varicose Swelling may make us presume, that if the Patient had fortunately recovered, the Remainder of the spermatic Vessels might have grown hard in time; which Mr. *Marechal* declared he had seen several times. *Le Dran*.

CASTRENSIS, στρατιωτικὸς, στρατιωμάτικος, military, or belonging to the Camp, is an Epithet of some contagious and epidemic Diseases, especially Fevers, mentioned by *Helmont de Febr. c. 10. n. 7.* and called by him, not improperly, *endemic*, in which the Patients suffer not so much from an Effervescence of Heat, as a malignant Crudity contracted from bad Diet, and an Abuse of the Non-naturals. *Willis de Febr. c. 14.* reckons them among pestilential Distempers. *Johan. Valent. Willius*, a Danish Physician, has wrote a Treatise expressly on these Fevers, printed *Hafn. 1676. 4to.*

CASUS. A very equivocal Word; sometimes it signifies the same as *Symptoma*, σύμπτωμα, a Symptom; sometimes it means any thing fortuitous, in which Sense it is opposed to *Art* or *Providence*, and is called in Greek τύχη, or τύχης ἔργον, "Fortune, or a Work of Fortune;" it bears also the Sense of the Word ἀνέμωσις, which is used by *Hippocrates de Arte*, and *Galen* in *Prognost. Hippoc.* and signifies spontaneous, or what happens without any Deliberation or Consultation.

CASUS is also the same as πῦσις, a Fall from an Eminence; in *Paracelsus Paragr. Lib. 1. Cap. 13.* it signifies a present Distemper; and, lastly, it frequently means the same as an entire History of a Disease, or empirical Observation, which is usually called *Casus Medicinalis*, a medicinal Case or Observation. *Castellus*.

CATABLEMA, κατάβλημα, in *Hippocrates, Lib. de Artic.* is the outermost Fillet, which secures the rest of the Bandage, as it is explained by *Galen* on the Place, and also in his *Exegetis*.

CATACERASTICOS, κατακεραστικός. The same as EPICERASTICOS, which see.

CATACHLOOS, κατάχλωος, from χλῆν, Grass, or green Herb, is expounded by *Galen* in his *Exegetis ἔργον χλωάδην*, "of a very green Colour." The Place he seems to regard, is in *Lib. 7. Epid. Cap. 15.* where κατάχλωα is apply'd to ὑποχωρήματα, "Stools:" But it is to be observed, that, for κατάχλωα, most read κατάχροα, "very bilious." Thus also, instead of γλισχροχρόα, *Erotian* reads γλισχροχροα, and ὑδαρόχροα is often read for ὑδαρόχροα or ὑδαρόχροα.

CATACHRESIS, κατάχρησις. The same as ABUSUS, which see.

CATACHRISTON, κατάχριστον, from κατάχρῖω, to anoint, in *Hipp. de Morb. Mal. Lib. 1.* is a Medicine apply'd by way of Unction.

CATACHYSIS, κατάχυσις, from κατάχυνω, to pour upon; an Affusion. The Word is used by *Hippocrates, 5 Aph. 21.* where he says, that a plentiful Affusion, κατάχυσις, of cold Water in the midst of Summer, recalls Heat into the Parts under a Tetanus, provided the Patient be young, and of a good Habit of Body.

CATACLASIS, κατάκλασις, from κατάκλωω, to break, to distort, signifies Breaking or Distortion in general, but is particularly spoken of the Eye. Thus ἐπανακλάσις ὀφθαλμοῦ, *Lib. 6. Epid. Sect. Aph. 19.* is explained by *Galen* to be an Affection of the Eye, ὅταν διαστρέψῃται τὰ βλέφαρα, "when the Eyelids are distorted" [See CAMPYLON]. And κατάκλασις τῶν ἄρθρων, in the preceding Aphorism, signify Distortions of the Joints, when they are not well adjusted, but are either involuntarily contracted and interfolded, or relaxed and thrown abroad in a loose and disorderly manner. *Foesius*.

CATACLEIS, κατάκλεις, Subclavicle, is a cartilaginous Bone, or the Cartilage seated where the Scapula joins with the Clavicle. *Galen Lib. de Offibus, Cap. 14.* says, it is only found in Man. In another Place, he calls it the first small Rib of the Thorax. *De Differt. Musc. Cap. 12.*

CATACLINES, κατακλινῆς, from κατάκλινω, to lie down as in a Bed. One, who, by reason of Weakness, and the Violence of a Distemper, keeps his Bed. The Word κατακλινῆς signifies the same as κατακεκλιμένος, κλινῆς, and κλινοπένης, *Clinicus*; and is opposed to τὸ ἐξυθεῖσθαι ἐν οὐχ λατῆσθαι, "to be so gently sick, as to be able to keep upon one's Legs." *Lib. 1. Epid.*

CATACLYSMA, κατάκλυσμα, from κατάκλυζω, to wash. The same as CLEYSMA, which see.

CATACLYSMI, κατάκλυσμοι, are Embrocations, *Cælius Aurelianus*, in many Places, expounds *Catclysmi* by *Illusiones Aquarum*, "Dashings of Water."

CATACORES, κατακορῆς, in *Hippocrates*, signifies full, abundant, satiated; and, when apply'd to Evacuations by Stool, means purely or intensely bilious. Thus κατακορῆς μᾶλλον τῷ κατῷ, *Lib. de Rat. Viæ. in Morb. acut.* "the Excrements"

"ments) are more bilious than they ought to be," or "colour'd and ting'd with pure Bile to an immoderate Degree." And so *Galen* explains the Words by *ἰκανῶς ἀκρῆστα, χολώδη, τὰ πύρρην ἢ ξανθὴν ἐχούσα καὶ παχέαν χολήν*, "purely bilious" to an Excess, containing a red, yellow and gross Bile." So, in *Coac. τὰ καλακροῖα*, express'd alone; without the Addition of Humour or Colour, signify Excrements deeply ting'd with Bile, or purely bilious.

CATÆONESIS, *καταϊόνσις*, from *καταϊόνειν*, to irrigate; Irrigation, by a plentiful Affusion of Liquor on some Part of the Body, which is used when the Patient is for some Reason obliged to abstain from the Bath. It differs from Embrocation, as *Gorræus* says, only in that, after a *Catæonesis*, we cover the Part with Wool or Linen, or some other Thing, which is not done after Embrocation.

CATAGLYPHE, *καταγλυφή*, from *γλύφω*, to cut in Wood or Metal. An Excavation, Hole, or Pit. The Word is used in *Hippoc. de Art. 6. de Morb.*

CATAGMA, *κάταγμα*, a Fracture, is defin'd by *Galen* a Solution of Continuity in a Bone. And, in his second Commentary on *Hippoc. de Art.* he says, "That *ἑλκῶς* is a Solution of Continuity in the Flesh, as a *Catagma*, or Fracture; is of that of a Bone; but when it happens in a Cartilage, there is no proper Name for it; tho' *Hippocrates*, by a *Catachresis*, or Abuse of the Name, improperly calls it also *Catagma*."

CATAGMATICA, *καταγματικά*, from *κάταγμα*, a Fracture, are Remedies in Surgery for the Cure of Fractures.

CATAGOGE, *καταγωγή*, in *Hippoc. Lib. 7. Epid.* is what we usually call Region, including the circumjacent Parts; as when he says *μίσον δ' ὀμφαλῆ καὶ χέντρο κατὰ ταύτην τὴν καταγωγήν ἀπριμένον τῇ χειρὶ τοῦτ' ὁ παλμός ἐν, &c.* "So great a Palpitation might be felt about the Region of the Umbilicus" and the Chonurus," (the Cartilage of the Breast) &c.

CATALENTIA. A Word coin'd by *Paracelsus*, to signify a kind of Epilepsy. *Castellus*.

CATALEPSIS, *καταληψις*, from *καταλαμβάνειν*, to occupy, detain, seize, or interrupt. This has many Significations. *Galen* uses it to express the Perception or Knowledge of a Thing, in which Sense it was used by the *Stoics*. It also signifies the Retention of the Breath, such as happens when a Person strains in order to procure a Stool; or a Retention of any Humour which ought to be evacuated. Another Signification is, the Interception of the Blood in the Veins by Bandage, as it happens in making a Ligature, before Bleeding. It is also a Term belonging to Bandages, and imports a laying hold, or fixing of the Bandage to some particular Part, that the rest of the Bandage may be retained.

But *Catalepsis* signifies a Distemper, which *Cælius Aurelianus* translates *Apprehensio*, and *Oppressio*, informing us, that *Hippocrates* and *Diocles* call'd it by the Name of *Aphonia*, and *Antigenes* by that of *Anaudia*.

Medicinal Writers are not agreed, whether the *Catalepsis* and *Catoche* are one and the same Disorder, or different from each other. Some look upon the *Catoche* to be the same as the *Coma Vigil*; but most Authors, by *Catoche* and *Catalepsis*, understand the same Disorder. But there is a manifest Difference betwixt the *Catalepsis* and a *Tetanus*; for in the latter all the Limbs are fix'd and immoveable, but in a *Catalepsis* they are indeed fix'd, but are easily flexible, and remain in whatever Position they are plac'd.

This Distemper occurs very seldom, and, as is said, generally in Winters intensely cold. The Fits seize the Patients at Intervals, and last for some Hours; tho' *Forestus* gives an Instance of one in a young Man, which continued for three Days.

It is seldom preceded by any Signs significant of its Approach. *Henricus ab Heer*, however, tells us of a Monk, who, before the Attack of this Disease, was seiz'd with a Stiffness of his Neck; and *Forestus* relates the Case of a Priest, who previously perceiv'd a dull Pain in the posterior Part of his Head.

OBSERVATION I.

In dissecting Subjects who have died of a *Catalepsis*, we have found the larger Veins running strait from the posterior Part of the Head to the Sinciput, full of a coagulated thick Blood, and a serous Matter lodg'd in the posterior Part of the Brain. And, indeed, the antient Physicians were of Opinion, that in this Disorder the posterior Parts of that important Organ were more particularly affected. *Galen*, in his Commentaries on the *Prorrhethics* of *Hippocrates*, makes Mention of a School-fellow, who surviv'd the Attack of this Disorder; for Diseases of every kind are sometimes more, and sometimes less violent. *Jacotius, Comm. ad Aphor. 7. Lib. 2. Coacorum.*

OBSERVATION II.

Secretary Vasco, in the Decline of a Fever accompanied with a Flux, when a Discharge of well concocted Urine promised a certain Recovery, was seiz'd with a *Catalepsis*, of which he died in one Day's time.

VOL. II.

Upon laying open his Body, his Lungs and Liver were found corrupted; a reddish kind of Serum was found in the posterior Part of his Brain, and a coagulated Blood in the large Vein which runs along the Middle of the Head. *Scoliographus ad Caput 9. Libi. 1. Holleris de Morbis intern.*

OBSERVATION III.

A certain Youth was first seiz'd with a gentle Fever, and afterwards with a *Phrenitis* and *Catalepsis*, upon which his Eyes became fix'd and rigid.

Upon opening his Head the Veins appeared varicose, and turgid with Sanies and black Blood. The medullary Substance of the Brain, which, in its natural State, is soft and friable, was become dry; and the Meninges were found excessively dry.

OBSERVATION IV.

A Merchant of *Liege* was put in Prison by a Creditor; but, obtaining Bail, was set at Liberty, returned home; and indulg'd himself in an Excess of Melancholy. A few Days after, he was seiz'd with an acute Fever, which, however, was not accompany'd with a Delirium. When the Fever left him, being seized with a slight Madness, which at last degenerated into one of the raging Kind; there was a Necessity for binding him. He shook with such Violence the Shackles in which his Hands were confin'd; that it was thought he would have broken them to Pieces. Having seiz'd his Wife's Necklace in his Teeth, he not only tore it, but; in a manner, reduced it to Powder. Having long used melanagogue Medicines at stated Times, and slept for many Nights, he seemed to resume the Exercise of his Reason so far, that he was thought to be perfectly recovered. Twenty Months, however, after his Imprisonment, he became foolish; like a Child, tho' he was then forty-one Years of Age; and the three last Fingers of his Left Hand were so crook'd inwards; that no Art could extend them. By purging his Head, and applying heating and moistening Oils to the Region of the Medulla Spinalis, he recover'd the Use of his Fingers; but, soon after, all the Fingers of the same Hand were incurvated, became stiff, and, as in a cataleptic Patient, could not be extended by any means. Soon after, he lost the Use of his Right Arm, and both his Legs; was deprived of his Speech, and lay immoveable. However; by means of various Ointments; Fomentations, and Gargarisms, he recover'd the Use of his Tongue; but for two Years after, till he died, he could not form an articulate Sound, but made an indistinct Noise, like a Child half a Year old, and had his Viſuals given him by the Hand of another. His Body, in the mean time, was sufficiently soluble, his Respiration very free, and his Pulse exceedingly good; till at last, about the End of the fourth Year, he dy'd.

Being call'd to the Dissection, I desir'd that the Brain should be first inspected, which, upon laying open the Cranium, was observ'd to be very dry, hard, and, on the Surface, friable, when touch'd with the Fingers. It was also every-where ting'd of a yellowish Lemon-colour, about the Depth of a Finger's Breadth. About the Ventricles and Base it was softer, and more moist, but the Colour was somewhat vitiated. The *Rete Mirabile* was depress'd; the Origins of the Nerves were dry, and more slender than in their natural State. Nothing uncommon was observ'd in the Thorax and lower Belly. *Henr. ab Heer. Observ. Medic. 3.*

The Signs of an approaching *Catalepsis* are some of them common to it with a Lethargy, as a lazy Indisposition, and Slowness of Motion; the Patient makes no Complaint of being at all affected with any Disorder, is slow in answering what is said to him, and insensibly falls into a too long and profound Sleep. But the proper Signs which distinguish the Approach of this Disease are, an intense Redness of the Cheeks, a continual Fever, a Flux of the Spittle, a high and full Pulse, with a Constipation of the Belly, or, on the contrary, an immoderate Looseness. When the Disease is formed, and the Patient actually labouring under it, he lies perpetually on his Back, his Neck distended, his Cheeks red; he is in a Fever, speechless, oppress'd with a Torpor or Dulness of the Senses, and he lies with his Eyelids open, and his Eyes fix'd, as in those who earnestly behold an Object, or in an Ox who has receiv'd the felling Blow; Tears also fall from his Eyes, as tho' he were sensible, and in Pain; a Subfultus, or Palpitation, affects his maxillary Muscles, his Lips, Eyebrows, Fingers, and Hands; he is frequently molested with frequent and violent Hiccoughs; his Pulse is high, humid, and full; he is very much afflicted with Costiveness; and is neither able to stretch forth his Limbs when drawn together, nor draw them in when extended. In some there is an Inflation of the Belly, as it were, from Wind, which increases gradually towards the Stomach; sometimes it seems to proceed from Humour, or from Food, and is attended with a Rumbling of the Intestines: The Teeth are vehemently set, and sometimes there is a Stridor, or Gnashing; and, in the Height of the Fit, the Teeth part asunder, and leave some Distance between them: The Patient lies with his Mouth open and relaxed, the Spittle running out at the Corners, and sometimes down his Throat with a Noise. Whatever Liquid is taken into the Mouth, or involuntarily receiv'd, floats about there; and the Patient very frequently draws up and contracts

his Lips, and fetches a Sigh, as if he were profoundly sorrowful: If any one moves his Fingers before his Eyes, the Patient twinkles, and follows the Motion of the Hand with his Sight; and, if he begins to grow better, he turns his full Sight with Attention to the Object; and, being call'd, looks about, and falls into Tears, saying nothing, but seeming, by his Countenance, willing to speak: He is delighted with pleasant Smells, and the continual breathing of sweet Odours; but can by no means endure any thing which smells rank or strong, but shews his Aversion to it as far as he is able: He is sensible of sweet and bitter Things when touched with his Tongue, and feels when he is prick'd: If his Arm be extended by any one, he draws it in again; and, if teaz'd, trembles, and grows red in the Face: Towards the End of the Fit, and Approach of Health, he often falls into a copious and hot Sweat, and relapses: If the Disease increases, there is an extraordinary Heat of the Superficies of the Body, the Respiration is more profound, the Eyes are distorted, the Chin drawn down, and fix'd, the Hands contracted, and the maxillary Muscles, by a spasmodic Affection, reduc'd to a laughing Posture; there is an extremely hot Sweat, and sometimes Eruptions of various Colours, and like those round Pimples which the *Greeks* call *Iontbi*, (*ιόντις*) on the Breast and Face, with a sudden Loss of Strength from the Violence of the Disorder; a Stertor, which the *Greeks* call (*ῥόγχις*), a cold Numbness, a pale Countenance, and at last Suffocation, and Danger of Death. *Cælius Aurelianus, Acut. Lib. 2. Cap. 10.*

This Description, in some Things, agrees with the more modern Accounts of a Catalepsy; but, as it disagrees in some respects, I shall give its Characteristics from *Hoffman*.

The Paroxysm of a Catalepsy generally attacks the Patient suddenly in this Manner: He remains fix'd in whatever Posture he happens to be in when seiz'd, whether standing, sitting, or lying: If his Eyes are shut, they generally remain so; but as the Distemper generally comes on in the Day-time, the Eyes are most frequently open, and immoveably fix'd, as it were, upon one Object, and cannot be made to wink, though touch'd or rub'd with an Handkerchief. Mean time the Limbs are capable of being mov'd and bended, but remain in whatever Situation they are put in: All manner of Sensation is abolish'd; for the Patient neither sees, hears, nor feels, even though pinch'd hard, or prick'd: The involuntary Actions are, notwithstanding, carry'd on regularly; thus the Pulse is natural, and Respiration easy; and, as *Forrestus* observes, whatever is put into the Mouth is swallowed down: Sometimes the Abdomen and inferior Ribs are convuls'd, according to the Reports of *Forrestus*, *Sylvius*, *Platerus*, and *Dolæus*: At the same time the Anus is so contracted, that it will not admit of the slenderest Pipe, as *Henricus ab Heers* remarks. Mean time, as *N. Piso* reports, the Face continues florid: At last they begin to sigh deeply, and then come to their Senses; and then give surprising Accounts of what they have heard and seen, as if they were reviv'd from a Trance. When out of the Paroxysm, they eat very little, or perhaps nothing at all.

In the *Histoire de l'Academie Royale* for 1738. we have a remarkable Instance of a Catalepsy, which will give a better Idea of the Distemper than any general Description, and which I shall therefore insert.

In the Year 1737. during *Lent*, a certain Lady, of about forty-five Years of Age, came from *Vesoul* to *Besançon*, to solicit a Law-suit of such Importance, that the Loss of it would have completed her Misfortunes, which had already made too deep an Impression on her. Agitated with the most uneasy Thoughts, she was never absent, either from those who had the Management of her Business, or from the Churches, where, by her Devotion, she endeavoured to interest Heaven to her Cause. In these religious Edifices she was seen prostrating herself before all the Altars, one after another, with such an Air of Sanctity, as to become remarkable in the Eyes of every one present. She slept little, and eat scarce any thing at all, either because she had lost her Appetite, or because she piously denied herself the common Necessaries of Life, in order to give the more liberal Alms; a Circumstance on which, she imagined, the Success of her Cause depended.

During this State of Things she was informed, that the Inclinations of the Court were not very favourable to her Interest; and about Five o'Clock on that Evening immediately preceding the Day fixed for passing the Sentence, she fell into a Disorder which was taken for an Apoplexy. Accordingly Mr. *Attalin*, Professor of Medicine at *Besançon*, and Mr. *Vacher*, Surgeon to the Hospitals of that City, were brought to her Relief with all Expedition.

These two Gentlemen found the Lady seated in an Arm-chair, incapable of Motion, with her Eyes lifted upwards, fixed, and sparkling; her Eye-lids open, and without Motion; her Arms elevated, and her Hands joined, as if she had been in a Trance: Her Countenance, which was before pale and ghastly, was now become more florid, gay, and beautiful: Her Respiration was free and equal, and the Muscles of her lower Belly played with Ease: Her Pulse was soft, slow, and suffici-

ently full, almost resembling that of Persons in a sound Sleep: Her Members were pliant, moveable, and capable of being bended any way, without making the least Resistance; but this unhappy Circumstance was the distinguishing Characteristic of her Disorder: Her Members were too obedient, but forgot to move out of the Situation in which they were plac'd.

Upon drawing down her Chin her Mouth became open, and remained in that State: First one, and then the other of her Arms was raised up, but they did not fall down again: They were turned backwards, and then elevated so high, that the strongest Man would not have been able to hold his Arm long in that unnatural Posture, which, however, hers retained as long as the By-standers pleased. They raised her on her Feet, in order to make the same Experiments on her Legs they had done on her Arms, and with a View to put both, at one and the same time, in Postures the most difficult to be retained. We may readily suppose, that an ardent Desire to discover the Cause of the Disorder, and a Principle of Curiosity, natural on such Occasions, must have laid a Foundation for various and whimsical Conjectures in the Spectators. The Patient was always like yielding Wax, which successively assumes any Figure at Pleasure, and always retains the last. Mr. *Attalin* says he believes she would have stood on her Head, with her Feet upwards. But what is still more surprising is, that however her Body was inclin'd, it always preserved a perfect Equilibrium. In a Word, she appeared like a Statue of Wax, whose Feet are fix'd to its Pedestal, in order to prevent its falling.

She appeared insensible; she was shak'd, pinch'd, and tormented; she had a Chafing-dish with Coals put under her Feet; and the By-standers bawl'd into her Ears, That she would gain her Cause; but no Signs of Life appear'd, for her Disorder was a confirm'd Catalepsy.

Mr. *Attalin* order'd Mr. *Charles*, his Fellow-professor of Medicine, to be call'd, and the Lady was blooded in the Foot by Mr. *Vacher*; after which they went to Supper, and came very soon back to their Patient. Upon their Return they found her recovered from her Disorder, which had lasted three or four Hours; and she greatly surpris'd them, by making a pretty long, well-pronounc'd, and coherent Speech, in which she gave a pathetic History of her Misfortunes, related the whole State of her Cause, and sum'd up all, with 'moral Reflections arising naturally from the Subject; and with Prayers to God, not previously compos'd, but poured forth in an extemporaneous Manner.

At the Expence of Truth they began to encourage her as much as possible, with respect to the fatal Cause which had been the woful Source of her Misfortune. Then they examin'd her carefully with respect to every thing she perceived to happen during her Paroxysm.

She saw nothing, but she sometimes heard, and that so distinctly, that she knew some Persons by their Voices. She was so far from remembering her being blooded, that she even doubted of the Fact when she saw the Bandage apply'd to her Foot. The Chafing-dish with Fire, which, in all Appearance, ought to have made a much more sensible Impression on her than a human Voice, did not, in the least, affect her. In a Word, tho' she had been violently tormented, she had not the smallest Remains either of Pain or Weariness.

Whilst they were thus entertaining themselves with their Patient, they perceived, that her Discourse was now-and-then interrupted by small Sighs, and that, in these Moments, her Eyes became fixed and immoveable. Nothing, in the mean time, was neglected, in order to prevent the Paroxysm with which she was threatened. She immediately recovered, and continu'd to speak, but without resuming her Discourse where she left off. She began another, tho' she was put in mind on what Subject she had been talking, and what particular Circumstance she had insisted on. This Accident happen'd every time this small Prelude of a Paroxysm interrupted her Discourse. The Idea of what she was to have said was entirely banished from her Mind, and another presented itself in so forcible a manner, that she could not resist its Impressions.

At an Hour's End, however, her Paroxysm return'd in all its Violence; and the Symptoms of a Catalepsy were the same, or, perhaps, of a more distinct and characterizing Nature than before. When this second Paroxysm was at an End, the Patient, seated in an Arm-chair, began to speak for an Hour and an Half, in the same Tone and Strain she had done after her first Paroxysm; but, at last, her natural and pertinent Discourse was succeeded by extravagant Jargon, accompany'd with hideous Shrieks and Howlings; and she was attack'd by a violent Phrensy, of which the Catalepsy was only the unlucky Prelude.

All the Remedies, employ'd by the skilful Physicians who had the Charge of her, prov'd ineffectual for the three or four Days she remain'd at *Besançon*, for which Reason she was sent home to *Vesoul*; and, what is no less surprising than her Disease itself, she there remains in a State of perfect Health, and has never since had a Relapse. But we are not as yet sufficiently acquainted

acquainted with the animal Economy, and its mysterious Laws, to account for so surprising Phenomena as these. *Histoire de l'Académie Royale des Sciences, Anna 1738.*

Bonelli, in Cap. 2. Hist. 54. and Marcus Marci, in Philos. Reff. affirm that this Disorder is more incident to Women than to Men; especially that Species of it which is accompany'd with a sort of Trance or Enthusiasm; for Women have more soft, tender, and sensible Nerves than Men; for which Reason they are not only highly susceptible of immoderate Commotions of the nervous System, but also a favourable Foundation is laid for cherishing all the violent Impressions and Passions of the Mind, together with the Disorders arising from an ungovern'd and disorderly Fancy. In Cases where there is a melancholic Habit, and where an unbounded Force of Imagination prevails, this Disease most generally appears; especially if, according to *Nicolaus Piso*, and according to Experience, whose Sanction is still more sacred and venerable, a cold Regimen, an unfavourable Season of the Year, and a cold Climate, concur.

That the Cause of a Catalepsia is lodged in the posterior Part of the Head, is not only obvious from the Dissections of deceased Patients, and the Pains of the posterior Part of the Head, and Nape of the Neck, which sometimes precede the Paroxysm, but also from the unanimous Voice and Consent of Physicians. But, in accounting more particularly for the Cause of the Symptoms, they have run into various obscure and perplex'd Hypotheses. Some affirm, that the animal Spirits are so fix'd and concentrated, that they are retarded and hinder'd in their Motion; but this can by no means be conceived to be true, with respect to these highly subtle and penetrating Bodies. Others have advanced Hypotheses still more absurd and ridiculous; but, without spending Time to recount them, I rather think, that the immediate Cause of a Catalepsia consists in a Hindrance of the Influx of the thin and fine nervous Fluid into the Nerves subservient to Sensation and voluntary Motion; whereas this Influx is carried on in its natural, and, in some measure, a more impetuous manner in the Nerves subservient to the vital and mechanic Actions. But, how this Influx into the former Class of Nerves is intercepted, we are now to inquire: If, therefore, we consider, that, in cataleptic Patients, all the Powers of Sensation, and all the animal Functions, entirely cease, 'tis highly probable, that the Influx of the nervous Fluid must be principally intercepted in that Part, from which all the nervous Fibres in the Body draw their Origin. This Place is call'd the *Sensorium Commune*, in which we must also fix the primary Seat of the Soul; for tho' this intelligent thinking Principle cannot, in consequence of its immaterial Nature, be, strictly speaking, included in Space; yet, since it is absolutely certain, that it maintains the strictest Union and Correspondence with the Body, and has a great Influence upon the Senses and animal Functions, it is necessary, that, with respect to the Operations, which it performs, by means of the nervous Fluid, in a manner unknown to us, we should ascribe a certain Space to it, in which it may perceive all the Changes of the Fibres, and commodiously perform all the Actions subjected to the Determination of the Will.

But the *Sensorium Commune* is neither, according to *Des Cartes*, in the Pineal Gland, nor, according to *Lancisi*, in his *Dissert. de Sede Animæ cogitantis*, the Corpus Callosum of the Brain. But, with later and more accurate Anatomists, we place it in the Medulla Oblongata, and that which constitutes the Basis of the Brain; for the nervous Ducts, arising thence, borrow their external Coat from the *Pia Mater*, which is interwove with a large Number of Vessels, and surrounds the Medullary Portions of the Brain, and are thus distributed thro' all the Parts of the Body subservient to Sensation, and voluntary Motion. Into these nervous Ducts the subtle Fluid is originally carried along with the Blood to the Head, thro' the Carotid and Vertebral Arteries, then secreted in the Cortical Substance of the Brain, after the cruder Parts are absorb'd by the Veins, and is at last impell'd with a certain Force thro' the Medullary Region; so that, by its Assistance, certain determinate and spontaneous Motions follow certain particular Thoughts; and, on the contrary, certain Ideas succeed certain particular Motions of the Body.

As, therefore, when the Influx of this fine Fluid is duly, and in a proper Quantity, carried on, all the Senses entire, and the animal Functions duly perform'd, we are in Health, and awake; so when this Influx is less, we are said to be asleep; and when it is entirely intercepted, we are destitute of all Sensation, and voluntary Motion. Now every Interception of this Influx is produced either by a Palsy, or a spasmodic Constriction of the small nervous Fibres; for an Obstruction of the Nerves is by no means the Cause, since, in a Catalepsia, a Palsy of the small nervous Fibres cannot stop the Influx of the fine Fluid into the Nerves, because the Paroxysms return at Intervals, and under them the Face is red; but 'tis otherwise in lethargic Disorders, arising from a paralytic Cause. In a Catalepsia, therefore, the Cause, preventing the Influx of the animal Spirits into the Nerves, is a spasmodic Constriction of the small ner-

vous Fibres at their Origin, before they penetrate the *Pia Mater*; and hence also arise all the other Symptoms.

For this Reason, therefore, all the Sensations, and all the animal Functions, cease: But, as there are no Spasms in the Parts subservient to these, the Reason is obvious, why the Members of them, incapable of Motion, may be bended at Pleasure, and remain immovable in the Situation in which they are put; but, at the same time, all the Motions we call mechanical remain entire. For 'tis certain, from anatomical Discoveries, that as the Nerves, subservient to Sensation, and voluntary Motion, draw their Origin from the Medullary Substance of the Brain; so, on the contrary, the vital Functions, which are by no means subjected to the Determination of the Will, are perform'd by the Nerves arising from the medullary and inferior Part of the Cerebellum, according to an Experiment related by the celebrated *Vienssens*, in his *Neurograph. Lib. 1. Cap. 20*. We have already observed, that, in a Catalepsia, those small Fibres, which, arising from the Brain, furnish the Nerves subservient to spontaneous Motion, are constricted; but those distributed from the Cerebellum, for the Preservation of Life, remain sound, and in their natural State: Hence the Palpitation of the Heart, and the Pulsation of the Arteries, continue, the Face becomes red, and the Respiration is natural. In the mean time, since the Influx of the nervous Fluid into the Organs subservient to Sensation, and voluntary Motion, is hinder'd, it easily happens, that this nervous Fluid is impel'd from the Cerebellum in a larger Quantity, and with a greater Impetus, into the Parts which perform the vital Actions: Hence it is we are to account for the obstinate Constiveness, and the convulsive Motions of the Breast and Abdomen.

It now remains, that we account for the Trances or Visions which cataleptic Patients frequently fancy themselves to have been in; for generally, when the Paroxysm is over, they talk of wonderful Joys, or tragical Apparitions, heavenly Visions, and the Company of Angels. They also attempt to predict future Events, and pretend to have acquired the Spirit of Prophecy. Various memorable Instances of this Kind are to be met with in the Works of Physicians. Nor, in these Cases, must we ascribe any Influence to the Devil; or suppose, that the Soul is removed from the Body to any other Place, or even to Heaven itself. There is no Necessity, on these Occasions, for having recourse to preternatural Causes; nor have we any thing to do with the devout Trances of *St. Paul*, and other holy Men; for we only talk of those Trances which happen in disorder'd Constitutions. If, therefore, we consider, that cataleptic Patients are generally of a melancholic Habit, have lively Imaginations, and their Thoughts generally employ'd upon sacred Objects, such as God, Angels, and eternal Life. If, also, as we are taught by Experience, and the Example of Dreams, we suppose, that the more the Soul is abstracted from the Perception of external Objects, and the Exercise of the vital Motions, the more intensely it indulges the Workings of Fancy; it naturally follows, that the ecstatic Visions of cataleptic Patients are only the Effects of an intense Fancy, whilst the Mind, being free from a Commerce with external Objects, recalls past Ideas, from a Comparison of which she may also happen to predict Futurities. But let us return to consider the remote and secondary Causes, which contribute to the Production of a Catalepsia.

Among these, the most considerable is a Peccancy of the thick and viscid Humours, which the Antients distinguish'd by the Epithet *Melancholic*; and which, moving with Difficulty in the Head and Brain, and stagnating principally in the Basis of the Brain and *Pia Mater*, prove an effectual Cause of the Constriction of the small nervous Fibres: Hence hysteric Women, and hypochondriac or melancholic Men, are not only more subject to a Catalepsia than others; but also the Dissection of those who die of this Disorder informs us, that the Vessels in the posterior Part of the Brain have been fill'd with a thick coagulated Blood, and that a serous Colluvies has been found extravasated in the Brain itself. Hence 'tis also obvious, why a Catalepsia sometimes ensues a Suppression of ordinary and stated Evacuations of Blood. Nor is the Reason less plain, why that Boy, mention'd by *Actius* in *Tetrabibl. 2. Serm. 2. Cap. 4*, who lay stiff and congel'd for three Days, was at last immediately recover'd by a plentiful Effusion of Blood from his Nostrils. Thick Humours will still more effectually contribute to the Production of a Catalepsia, if a violent Expansion and Exultation of them concur; since, by this means, the Vessels of the Brain and *Pia Mater* are more distended. Hence it may be conceived, why this Disorder is produced by intermittent Fevers preposterously suppress'd, or treated with Volatiles, according to *Dodonæus*, *Obs. Med. 44*, by indulging too liberally the Use of generous Wine, according to *Platerus*, *Lib. 1*, and by Drunkenness, or an Excess of Passion, according to *Dolæus*, in *Encyclop. Medic.* Nor ought we to forget, that as Worms of the Intestines produce the most violent Disorders, so they sometimes lay a Foundation for a Catalepsia, according to *Marcellus Donatus*, *Lib. 2. Cap. 7*.

Besides,

Besides, a great Regard is to be had to the Violence of the Passions, by which, as Authors inform us, a Constriction of the nervous Fibres in the Brain, with a subsequent Catalepsia, is produced, the Disorder bearing a Proportion to the Violence of the Passion. *Tulpius*, in *Lib. 1. Obs. Cap. 21.* gives us an Account of a young Man, who became cataleptic upon a Woman he loved refusing to marry him, but recover'd upon obtaining her Promise. *Rondeletius*, *Lib. 1.* gives us an Account of a Girl, who, being forced to marry a Man she did not love, was afflicted with such Grief, that she became cataleptic; and was seiz'd with a Paroxysm when she saw her Husband, heard of him, or even thought upon him. *Henricus ab Heer. Observ. 3.* gives us an Account of a Man of a melancholic Habit, who, by indulging himself in an Excess of Grief, became cataleptic. See *Observ. 4. above.* It is also confirm'd, by the Accounts of skillful Physicians, that this Disorder is sometimes produced by too intense Application of Mind, and profound Meditation, especially if a cold Habit, and other accidental Causes, concur. Instances of this Kind are to be met with in *Galen, Comment. in Hippocr. Zacutus Lusitanus, Lib. 1. Histor. 42.* and *Fernelius in Pathol. Lib. 5. Cap. 2.* Profound sacred Meditations, especially when accompanied with spiritual Contrition for past Sins, highly contribute to the Production of this Disorder, complicated with a Trance. See *Sennertus in Praxi. Herfeld. Tr. Philosoph. Hominis. Augustinus de Civitate Dei, Lib. 14. C. 24.*

Among cataleptic Patients we may also reckon those who are, as it were, congeal'd and struck with an intense Cold. The Reason of this is, that the Cold has a Power of violently bracing up the Surface of the Body, which it immediately surrounds. Upon this Constriction the Humours are carried in a larger Quantity to the internal Parts, and are principally accumulated in the Head, stagnate in the Vessels of the Brain, and distend them: Hence they produce a Stricture of the nervous Fibres arising from the Brain, which is the Origin of a Catalepsia, attended with an Abolition of all the Senses. The intense Cold continuing, and by that means its Effects, already mention'd, remaining in the Body, there at last happens an Extravasation of Blood or Serum in the Head, by which the Cerebellum is often compress'd in such a manner, that the nervous Fluid cannot enter the vital Organs; and hence Death ensues. As fatal Cases of this Kind almost daily occur, so, in *Forestus, Lib. 10. Obs. 41.* we have a great Number of them, where we are told, that, during the intense Cold of the Winter, many Soldiers, standing on their Watch, were found dead. Others, sitting on their Horses, with the Reins still in their Hands, were taken off congeal'd; and at last the Horses themselves became incapable of Motion, and died (*This Disorder, however, seems very different from a Catalepsia*).

If we consider the accidental Causes which generally bring on the Paroxysms of a Catalepsia, the most considerable of them are violent Commotions of Mind, Grief, Terror, Joy, Fear, and Sadness; as also the seeing hideous and disagreeable Objects. Authors inform us, that some have been congeal'd by the Recital of certain Words, or the singing Psalms; and I myself, says *Hoffman*, saw a Woman, who, upon hearing some Words, expressive of an ardent Love to her Redeemer, was seiz'd with a Catalepsy; and a certain Clergyman, according to *St. Austin*, upon hearing the Cries of the Distress'd, was seiz'd with his Paroxysm. According to *Nicolaus Piso, L. 1. C. 13.* a cold Air, living in high mountainous and cold Places, the Winter-season, and coarse Aliments, contribute very much to the Generation of this Disorder.

As to the Prognostics of a Catalepsia, if it is produced by the Passions of the Mind, or profound Meditations, it does not threaten a very great and mortal Danger: But, on the contrary, when it proceeds from a thick, viscid, and impure Blood, or from a Suppression of accustom'd Evacuations of Blood, it is highly dangerous; for it either terminates in Melancholy, or is chang'd into an Epilepsy, as *Marcellus Donatus, Cap. 8.* informs us from *Benivenius*; or, lastly, it terminates in a violent Apoplexy, and kills the Patient. Nor is the Congelation, brought on by Cold, of less Danger; since, if seasonable Relief is not afforded, sudden Death ensues.

In the Cure of this terrible Disorder, two curative Intentions are principally to be regarded. The first is to relax the spasmodic Stricture of the small nervous Fibres in the Brain. The second is cautiously to remove the material or secondary Causes which contribute to the Production of this Constriction. As the former Intention is principally to be answer'd during the Paroxysm, so the latter is rather to be pursued when the Patient is out of it.

During the Paroxysm itself, especially when violent, little Advantage is to be reap'd from Medicines. But we are, notwithstanding, to use all possible Means to alleviate the spasmodic Strictures, and rouse the Patients, who seem to be awake whilst they are asleep; for this Purpose we ought to apply to the Nostrils either volatile urinous Spirits, or highly penetrating Acids, such as Wine-vinegar, or strong Vinegar of Rue, or

Spirit of the Crystals of Copper, which is only a concentrated Spirit of distill'd Vinegar (see *ACETUM*); for these Acids are of a far more penetrating and efficacious Quality than any volatile Salt. Nor will it be improper to apply nervous and antispasmodic Oils, prepar'd by boiling, to the Nape of the Neck, and posterior Part of the Head, after the Hairs are shaved off. This Species of Remedy is commended by *Forestus, Lib. 10. Obs. 42.* Strong Clysters may also be injected, if the Anus is not so shut up as to admit nothing. And, lastly, especially when the Disorder proceeds from too large a Quantity of Blood, and too violent a Conveyance of it to the Head, and when the Veins of the Face are turgid with Blood, under the Paroxysm, a Scarification of the Nostrils, or the introducing a notch'd Probe, and velli-cating the Parts with it, till an Effusion of Blood happens, promise considerable Relief.

It is not safe to make farther Attempts during the Paroxysms; but the Intervals between them are the proper Time for endeavouring, as far as may be, the Removal of the material and mediate Causes. If this Disorder, which is so rare and uncommon, has its Original from Melancholy, and such as is of the hypochondriac or hysteric Kind, as is most frequently the Case, where gross and viscid Humours stagnate, or move with Difficulty in the Vessels of the Brain, we are to have recourse to proper Remedies for subduing this Disease, which correct the Thickness of the Blood, and restore a free Circulation. Among these Remedies, besides Clysters and gentle Laxatives, are to be reckon'd Phlebotomy, repeated at proper Seasons, with Motion and Exercise of the Body, and the right Use of the Non-naturals. Washings of the Feet, and Bathing, are principal Remedies, as well as drinking of mineral Waters; or, instead of them, Whey impregnated with the Salt of the *Sedlitz Waters*.

If the Disease be maintain'd by a Plethora, or a Redundance of Blood and Humours, occasion'd by a Suppression of the natural Evacuations of the Hæmorrhoids, or Menses, or an Omission of those artificial Discharges by Bleeding or Scarification, which were habitual, we are to lay hold of the Opportunity, during the Intervals of the Paroxysms, for recalling or restoring these Evacuations, or at least to diminish the excessive Quantity of Blood by opening a Vein. For this Purpose, Venesection in the Feet is justly prescrib'd; after which, if the Quantity of Blood is so large as to lay a Foundation for suspecting an Apoplexy in the very Paroxysm, the Veins of the Nostrils are to be open'd, by thrusting a Probe up them. If the Patient's Body is lax and spongy, Scarifications may be substituted; or if a Propensity to a hæmorrhoidal Discharge is perceived, which is indicated by Pains about the Os Sacrum, and the Intestinum Rectum, or if a Suppression of this Discharge contributes to this Disorder, it is again to be promoted, as *Nicolaus Piso* justly advises, in *Lib. 1. Cap. 13.* For this Purpose, after having sufficiently fomented the Anus, the Application of Leeches is proper.

If there is a Suspicion of Worms, Anthelminthics are to be prescrib'd: But of these such as are acrid, and vellicate the already irritated Intestines, the more acrid Purgatives, for Instance, Preparations of Vitriol, Acids, Mercurials, Preparations of Aloes, and much more Preparations of Copper, are to be avoided like Poison. It is far more proper to exhibit Pills which are composed of less acrid and corroding Ingredients, such as the Extract of Tansey, Worm-seed, Rhubarb, Myrrh, Asa-fœtida, and the Panchymagogus Crollii, mix'd up in equal Quantities. These Pills are of singular Efficacy.

When the Cause of a Catalepsia resides principally in the Mind, either rack'd with violent Passions, deeply fix'd on certain Ideas and Meditations, or agitated with the Workings of Conscience, Medicines are, in these Cases, of little or no Service. The Physician is only to endeavour, by proper Means, to remove the material Causes, if any such concur to the Production of the Disorder. We are also to endeavour to banish from the Mind sad and melancholy Ideas, which, to it, are like Scourges and Tortures to the Body, by the facetious and agreeable Conversation of Friends; nor are Idleness and Ease, those great Encouragers of profound Meditation, to be too much indulged. A Change of Air is, in these Cases, a valuable Remedy; since, by it alone, I have seen this obstinate Disorder removed. By this last Remedy the Case related above, from the Memoirs of the Royal Academy, was cured.

Those who are congeal'd with Cold, and have as yet some Signs of Life remaining, are to be removed to warmer Places: But they must not be too warm, lest the Blood, driven to the internal Parts, should of a sudden exultate, and be extravasated. It is also proper, in such Cases, to cherish the Body with gentle Frictions, that the external Parts, which are constricted, may be relax'd, and the Humours again invited to them. Then, rousing the Patients, their Feet are to be put in very warm Pediluvia, which are of singular Service, partly by relaxing the Skin, and partly by restoring the equable Circulation of the Juices. The Strength of the Patient is also to be recruited by Cordials, and a Draught of generous Wine.

Practical

Practical Cautions and Admonitions.

It ought carefully to be observed, that, during the Paroxysm, volatile oleous Salts, the stronger apoplectic Balsams, and the hotter Liquids, are carefully to be abstain'd from, if the Catalepsis arises from an Orgasm, Expansion, or Stagnation of the Humours; for, in this Case, the Blood is put into a more violent Commotion, and it is to be dreaded, lest an Extravasation and Apoplexy should ensue. It is more adviseable, in these Cases, to use the stronger Acids, and to anoint externally with nervous, anodyne, and antispasmodic Oils and Balsams. But if the spasmodic Constriction of the small Fibres of the Brain is brought on by the Passions of the Mind, Fear, Grief, or intense Meditation, then volatile oleous Salts are of Service, both internally and externally.

As in all violent Disorders of the Head, arising from too large a Quantity of Blood, thrown into strong Commotions, and too plentifully convey'd to the Head, such as Head-achs, Deliriums, Convulsions, and Epilepsies; so also, in a Catalepsis, when arising from the like Cause, a Detraction of Blood is of singular Service, by thrusting a Probe into the Nostrils. Nor was this Operation unknown to the Antients; and the Words of *Aretæus*, in his seventh Book, are very remarkable: "In these Cases, says he, 'tis necessary, that Blood be extract-
"ed from the internal Parts of the Nose; for a pretty long
"Instrument is to be thrust up, which they call *Cateadion*,
"or that which is call'd *Storyne*; or, if the Surgeon has none
"of these at hand, he must take a Goose's Quill, cut off the
"thick Part, and notch its nervous Part in the Form of a
"Saw, and introduce it as far as the *Offa Ethmoidea*, so
"call'd from their Resemblance to a Sieve, and then twist
"it with both Hands, that the Parts may be lacerated and torn
"by its Teeth, by which means the Blood flows easily and
"plentifully; for small Veins terminate in the Nostrils,
"whose Substance is soft, and easily cut."

When a Catalepsis is produced by the Workings of the Imagination, it eludes and baffles the Force and Efficacy of Medicines. But Travelling, and Change of Air, afford the most certain Relief; for 'tis scarce credible, how great Virtue and Efficacy, for the Cure of Disorders of the nervous System and Spirits, there is in Travelling, especially into Places where the Air is wholesome, and, as *Celsus* advises, contrary to that which produced the Disease; for the Air is that important and fine Element, which, by its elastic ethereal Portion, mixing with the Blood and lymphatic Juice, not only supplies the moving solid Parts with Sensation and Motion, but, according to *Galen*, has something divine in it in the Cure of Diseases. Besides, Travelling is attended with this Advantage, that the Ideas which used to disturb the Mind are by its means banish'd, and succeeded by others of a more pleasant Kind, to which it gradually habituates itself. It has also frequently been observ'd, that this Disorder has been carried off spontaneously, by Length of Time; for, as we advance in Age, the nervous Fibres become stronger, and the Mind more firm.

As for Preservation, it may be obtain'd by carefully avoiding the accidental Causes which contribute to the Production of this Disorder. And since Cold is singularly hurtful in this respect, it is not only carefully to be guarded against, but, if our Situation will allow us, we must remove from cold and mountainous Places, to those where the Air is more mild. Let the Regimen be proper, and every thing that is acid, or can communicate a Coldness to the Stomach, be avoided in Food. Let Solitude be shun'd, and a Choice made of agreeable Company, in order to banish Care, Grief, and Thoughtfulness, from the Mind. It ought to be carefully observ'd, about the Winter-season, that material Causes are not left in the Body, which may bring on the Disorder. For this Purpose the Primæ Viæ are to be kept free from Sordes, and the Quantity of the Blood is to be diminish'd by proper Venesection, and frequent Exercise.

CATALOTICA, in *Castellus* and *Rieger*, is by Mistake for CATULOTICA, which see.

CATALYSIS, *κατάλυσις*, from *κατάλυω*, to dissolve, or destroy. It implies a Resolution of the Limbs, that is, a Palsy; or a universal Resolution or Decay, such a one as happens frequently before the Death of the Patient. Or it imports what we express by Dissolution, that is, Death.

CATAMENIA, *καταμηνία*, from *κατά*, and *μήν*, a Month; the same as MENSES, which see.

CATAMOSAS, *καταμώσας*, is expounded by *Galen*, in his *Exegesis*, *καθὲς ἵνα τῷ ἰητήρι*, "Who has let down something, for the sake of making a Search;" and he says, "The Word is made *κατά τὸ μαίνειν*, which is, to inquire or investigate; as is also the Word *Catamatumenos*, *καταματῶμεν* &c." This last Word seems to be taken from *Hippocrates*, *Lib. de intern. Morb.* tho' we find not there *καταματῶμεν* &c., but *καταματῶμεν* &c., and *καταματῶμεν* &c., for which, perhaps, some Copies might with *Galen* read *καταμώσας*. *Foesius*.

CATANANCE. Candy-lion's-foot.

VOL. II.

The Characters are;

The Cup of the Flower is squamous, and of a Silver Colour; the Florets, which are round the Margin, are much larger than those in the Middle of the Flower; the Seeds are wrapt up in a leafy or downy Substance, with the Cup or outer Covering.

1. *Catanance*; *quorumdam*. Lugd. 1190. *Catanance Dulechampii*, *flore Cyani*, *folio Coronopi*. J. B. 3. 26. *Chondrilla cærulea*, *Cyani capitulis*. C. B. P. 130. *Chondrilla Sesamoides dista*, *flore completo*. H. Eyst. Æst. o. 5. F. 4. Fig. 2. *Cichorium cæruleum*, *coronopi foliis angustis, caliculis squamatis, argenteis*. M. H. 3. 55. BASTARD-SUCCORY, or LION'S-FOOT, with BUCK'S-HORN LEAVES.

There are two Species of Sesamoides mention'd and describ'd by *Dioscorides*; but his Descriptions are so short and obscure, that, as to the greater Sesamoides, it remains a Doubt to this very Day what Plant he means by it; some taking it for Hellebore, others for Reseda, and others for Thymelæa. There are various Opinions also about the lesser Sesamoides; but the Plant agrees best with the Description of *Dioscorides*. *Dale*.

The lesser Sesamoides has a Stalk a Span long, with Leaves like those of the Coronopus, only lesser, and more hairy. On the Tops of the Stalks stand little Heads of purplish Flowers, which are white in the Middle. The Seed is like that of Sesamum, bitter and yellow. The Root is but slender.

An Ounce of the Seed, taken in Hydromel, purges Bile and Phlegm by Stool; apply'd, by way of Cataplasim, with Water, it dissolves Tubercles, and cedematous Swellings. It grows in rough Places. *Dioscorides*, *Lib. 4. Cap. 153*.

2. *Catanance*; *flore lutea; latiore folio*, T. 478. *Stæbe Plantaginis folio*. Alp. Exot. 284. a.

3. *Catanance*; *flore lutea; angustiore folio*, T. 478. *Stæbe Plantaginis folio, angustifolia*. H. Cath. a. a. *Boerhaavi's Index alter Plantarum*.

CATANGELIE, *καταγγελίη*. See CACANGELIA.

CATANTIA, *κατάντη*, in *Hippoc.* *καὶ ὡς ἐστίν*, is explain'd in *Galen's Comment.* to be the Declivity of the Members, as of the Arms and Legs when they hang down. *Foesius*.

CATANTLEMA, *κατάτλημα*, from *ἀτλάω*, to draw or pour Water. A kind of Lotion, by Infusion of Water. *Moschion de Morbis Mulierum*.

CATANTLESIS, *κατάτλησις*, a Lotion with hot Water express'd out of Sponges, recommended by *Marcellus Empiricus*, *Cap. 1.* for hot running Ulcers of the Head.

CATAPASMA, or CATAPASTUM; also DIAPASMA, EMPASMA, and SYMPASMA, Words of the same Import, from *πάω*, to sprinkle. With the antient Greek Physicians they signify'd any dry Medicine reduced to Powder, in order to be used by way of Insersion on the whole Body, or any Part of it. Their various Uses are mention'd by *Paulus*, *Lib. 7. Cap. 13.* where he says, that some of them are appropriated to Ulcers, others to the Skin: Of the first Sort, some fill up Cavities with Flesh, others repress Excreescences; some cicatrize, others are caustic and corrosive, and others stop Hemorrhages: Of those which are apply'd to the Skin, some are deterfive and mundificative, others attenuate and discuss. Catapasmis, therefore, may consist of Medicines of different Kinds, according to the Intention of the Physician; as, for Instance, of Dryers, Astringents, Abstergents, Acrids, Corrosives, and others. *Pliny*, *Lib. 21. Cap. 19.* tells us, that Diapasmis, made of Roses, were used to restrain Sweat, and to dry the Body after bathing: And *Dioscorides*, *Lib. 1. Cap. 21.* says that a Diapasm was made of the Wood of Agallochum, with which they sprinkled the Body, in order to prevent Sweating; Powders which they put in their Drinks were also called Diapasmis. But this Name *Diapasm*, according to *Pliny*, *Lib. 13. Cap. 2.* was particularly given to such Powders as were in Request on account of their grateful Smell. And *Oribasius* shews, from *Antyllus*, that *Empasmata*, *εμπάσματα*, were used in order to restrain Sweat, or any other Evacuation by the Pores, or for satisfying the outer Skin, or to provoke an Itching. Catapasmis were sprinkled on Ulcers, but Diapasmis were prepared for the sake of Smelling, and were apply'd to the Armpits, and the Inside of the Thighs, to remove their rank Scent. *Cælius Aurelianus*, *Morb. Acut. Lib. 2. Cap. 38.* informs us, that *Sympasmata*, *συμπάσματα*, was a Name for such Powders as, being endu'd with an acrimonious Quality, were sprinkled on the Body, in order to procure Heat: And, *Tind. Passi. Lib. 3. Cap. 5.* he says it was a Name given to those Aspersions or Sprinklings which were invented on account of Itching.

CATAPASMUS, *καταπασμός*. A Term used by *Cælius Aurelianus*, probably by a Mistake for some other Word. It implies, according to him, a Rubbing of the posterior Part of the Shoulders and Neck downwards (*deverso Gursu*).

CATAPHORA, *καταφορά*. The same as COMA. See LETHARGUS. It is deriv'd from *καταφέρω*, which, among other Significations, implies to render sleepy.

CATASTIUS Lapis. The ACHATES, which see.

CATAPHIRACTA, *καταφράκτα*. The Name of a Bandage described by *Galen*. It comes under the Armpits, round the Neck,

Neck, and crosses upon the Breast and Shoulders; and is design'd to fix Dressings upon those Parts.

CATAPLASMA, κατὰπλάσμα. A Cataplasm. It is an external, topical, soft kind of Medicine, of the Consistence of pretty thick Panada, and prepared of Ingredients of different Virtues, according to the Intention of the Physician. Hence there are different Sorts of Cataplasms, with respect to the Matter of which they consist, as emollient, resolvent, discutient, suppurative, corroborating, anodyne, and antiseptic Cataplasms. And, because Cataplasms are very frequently used in Cases where Emollients are requir'd, hence *Malagma*, from μαλάωω, to soften, and *Cataplasma*, were synonymous Terms, even tho' the former were not compos'd of Emollients, but of Astringents, or any other Sorts. *Le Clerc* says, that Cataplasms were a sort of Medicine in Use among the Antients, of a thinner Consistence than their Cerates, and compos'd of Powders or Herbs, macerated or boil'd in Water, or some other Liquor, with an Addition sometimes of Oil. *Hippocrates*, for a Quinsy, directs a Cataplasm made of Barley-meal, boil'd in Wine and Oil. Cataplasms were apply'd with an Intention of mollifying and resolving a Tumor, or of maturing an Abscess, almost after the same manner as Cerates. There were also cooling Cataplasms, prepar'd of the Leaves of the Pear-tree, Olive-tree, Fig-tree, or Oak, boil'd in Water. The same Author informs us, that the Cataplasm of the Antients was a soft Composition, made after different manners, sometimes with Oil and Honey, and some Powders, as of Linseed, Seed of Fenugreek, and such others; sometimes with Herbs boil'd in Water, or some other Liquor; and sometimes they were prepar'd simply of Water, Oils, and Flour: They were also made of Bread boil'd in Water, of Bran, of Figs, or of Leaven and Oil. Besides those used in mollifying, maturing, or resolving an Abscess, there were also astringent, cooling, and aperitive, besides other sorts of Cataplasms.

The strongest of all these Cataplasms were those made with Mustard pound'd, or other Substances yet more acrimonious, as Cantharides, mix'd with Crums of Bread, or dry'd Figs macerated in Water, and reduc'd to a Pulp. These Cataplasms excited a Redness in the Part, and sometimes Blisters, and took off the Skin. This sort of Cataplasm they call'd *Sicapismus*; and it was of Service in long and cold Distempers, and in Stupor of the Senses. Thus far *Le Clerc*. In Italy the Followers of *Pythagoras* and *Erasistratus* made more Use of Cataplasms in the Cure of Diseases, than did other Physicians, as *Schulzius* observes in his *Hist. Med.*

Cataplasms are commonly applied hot or lukewarm, roll'd up in Linen Cloths, which, by means of the Oils which are added, preserve Heat for a considerable time; for which End also some, upon these, apply a Swine's or Ox's Bladder, and sometimes on the Top of all apply an earthen Tile. As for other Cataplasms, which take their Names from the Part to which they are apply'd, or from their Effects, or some other Circumstance, consult the proper Articles, as, for Instance, **ANACOLLEMA**, **FRONTALE**, **EPICARPIUM**, **EPISPASTICUM**, and **VESICATORIUM**. But, as we are here speaking of Cataplasms in general, we are to observe, that some are prepar'd by boiling over a Fire, others not; whence they are distinguish'd into crude and boil'd: Of the former are green Plants bruised, and reduced to a Pulp, or dry'd, and reduced to Powder, and mix'd with a sufficient Quantity of some crude or prepar'd Oil, or other convenient Liquor. Cataplasms are prepar'd by means of Fire and Boiling, when the bruised or pound'd Plants are boil'd in a sufficient Quantity of some Liquid to a Softness, and then pass'd thro' a Strainer, which is not always necessary, if the Plants be well bruised and boil'd. When this is done, they add a sufficient Quantity of Mucilage, Meal and Fat, Oil, Butter, Ointment, Leaven, Bread, Honey, and boil it over again to the Thickness of Pap. It may be boil'd in any Liquid, whether it be Water, Oil, Milk, Whey, Wine, Beer, Vinegar, or any other, according to the Discretion of the Physician. But it would be absurd to prepare Cataplasms by Decoction of Species whose Virtue consists in their volatile Parts, because they evaporate in Boiling; whereas, on the other hand, nothing can be more proper than to prepare them by Decoction of mucilaginous Substances, such as are in the Class of Emollients, because they are soon soften'd and reduc'd to a Pulp; for which Reason also green Vegetables are prefer'd to what are dry'd. It would be convenient also, when Cataplasms are to be prepar'd of Milk, with an Intention of mollifying, to observe the Advice of *Forestus*, which is, in the first Place, not to boil them too much, but, rather than commit such an Error, make them without Boiling, because Milk is inspissated by Decoction, and the thin Parts of it are dissipated; secondly, that you chuse the newell and richest Milk that can be had. When the Pulp is prepar'd, it may frequently be necessary to mix it first with dry Ingredients, as Powders; secondly, with liquid and soft Substances, as Fat of Animals, Butter, express'd or prepar'd Oils of Vegetables, Ointments, the Yolk or White of an Egg, and other like Things; thirdly, with distill'd Oils, Essences, Tinctures,

Elixirs, or Spirits: All these are to be mix'd in such a Proportion as not to destroy the pulpos Consistence of the Cataplasm: The common Rate of Allowance is, for one Pound of Pulp, three Ounces at most of dry Ingredients, or Powders, and Liquids under the second Head before-mention'd, and three Drams at most of spirituous Substances mention'd under the third. The Physician, who prescribes the Cataplasm, determines the Weight or Quantity of the Ingredients for preparing the Pulp according to the Intention he has in View: He next declares whether he would have them reduc'd to a Pulp by Decoction, or only by pounding them; and, lastly, appoints the Quantities of the other Things which are to be mix'd with the Pulp, if he judges them necessary. If he thinks fit to add some hard Things, as resinous or gummy Substances, he orders them to be dissolv'd or macerated in some Menstruum, that they may the more conveniently be mix'd; and the same Method is to be taken with Balsamics, as Turpentine, for Instance. When Dungs of Animals are to be taken, their Consistence, with respect to Dryness, Humidity, or Softness, shews whether they are to be mix'd with dry or liquid Substances, in order to receive the due Form of a Cataplasm. For it is to be observ'd, as *Joubert* would have us take notice, that a Cataplasm is of a thicker Consistence than an Ointment, and is nearly a Medium between an Ointment and a Plaister. Sometimes Elixirs, Extracts of Vegetables, Leaven of Bread, and the like soft Bodies, Pulps of Fruits, inspissated Juices, Balsams, and the like, are us'd instead of Cataplasms, either in their crude State, and unmix'd, or else alter'd by an Addition of other liquid, soft, or dry Substances, in such a Quantity as to render the Whole of a due Consistence. If the Physician happens to be at an Uncertainty whether, by Addition of this Variety of Ingredients, which are call'd *Accessories*, the Medicine will acquire a just Consistence, to prevent his being laugh'd at by the Apothecary strictly observing his Directions, or giving him Occasion to add Things of his own Head, which would not agree with the Intention, it is a receiv'd Custom, at the End of the Formula or Prescription, to name some Liquid or Species, which is not dangerous in its Application, by exceeding a little in Quantity, and order it to be taken without determining the Proportion, but with a *Quantum sufficit*, or so much as is necessary to give a due Consistence to the Medicine. Sometimes, after the Cataplasm, we find a Liquor prescrib'd, which is to be brought to the Patient in a separate Vessel, and the Cataplasm to be sprinkled with it before Application, either for the sake of its grateful Smell, or to exalt the Virtue of the Remedy, or to supply it with Moisture, or for any other End which the Physician may have in View. The Quantity of the Cataplasm is generally determin'd by the Part or Place to which it is to be apply'd, tho' seldom less than half a Pound is prescrib'd, when prepar'd by Decoction.

CATAPLEXIS, κατὰπληξις, from πλύνω, to strike. It seems to imply any sudden Stupor, or Deprivation of Sensation, in any of the Members or Organs.

CATAPOSIS, κατὰποσις, from καταπίνω, to swallow down. Deglutition; or, according to *Aretæus*, the Instruments of Deglutition. Hence also

CATAPOTIUM, κατὰπότιον, or κατὰποτον. A Pill. See **PILULA**.

CATAPSYXIS, κατὰψυξις, from ψύχω, to refrigerate. A Refrigeration without Shivering, either universal, or of some particular Part.

CATAPTOISIS, κατὰπτοσις, from καταπίπτω, to fall down. It implies such a Falling down as happens with respect to apoplectic or epileptic Patients; or the spontaneous Falling down of a paralytic Limb; or it sometimes imports a degenerating from a healthy to a morbid State.

CATAPUTIA Major. See **RICINUS**.

CATAPUTIA Minor. See **LATHYRIS**.

CATARACTA. A Cataract, a Disease of the Eye. The Words by which the Antients express'd what we call a Cataract, were ὑπόχυμα, or ὑπόχυσις, and γλαυκώσις, or γλαυκώμα.

The ὑπόχυμα, or ὑπόχυσις, is defin'd by some, as the Author of the *Medicus* tells us, a Flux of Humour about the Pupil, which concretes, and either wholly intercepts the Sight, or renders it dim and obscure. In the *Definitioes Medicæ* also, which Treatise, as well as the *Medicus* before-mention'd, is ascrib'd to *Galen*, a ὑπόχυμα is defin'd a Concretion of an aqueous Humour, which is more or less an Impediment to the Sight: And *Paulus*, *Lib. 6. Cap. 21.* makes an ὑπόχυμα to be a Concretion of a dull Humour within the Cornea, near the Pupil of the Eye, which intercepts or obscures the Sight. *Celsus* also, *Lib. 6. Cap. 6.* says that a *Suffusio*, which the *Greeks* call ὑπόχυσις, sometimes seats itself opposite to the Pupil of the Eye.

Γλαυκώσις, and γλαυκώμα, (*Glaucomas*) in *Hipp. Aph. 31. Lib. 13.* are said to be familiar to old Men, and are caus'd, as *Galen* says on the Place, by the Dryness of the Organs.

Α γλαυκώσις, in *Arëtæus, Titul. 2. Lib. 3. Cap. 50.* is said to be a Change of the crystalline Humour to a glaucous or sky

sky Colour, with a Dryness and Concretion. And there is another kind of *γλαύκωσις*, or *Glaucoma*, consequent upon a Suffusion, when the Humour near the Pupil is very firmly congealed and dry'd; and this is what is generally meant by the Word, when used by the Antients; and this Disease they thought incurable. *Galen, Lib. 10. de Usu Part.* defines a *γλαύκωσις* to be a Dryness and Concretion of the crystalline Humour.

Mr. *de Saint Yves*, a celebrated French Oculist, has given the subsequent Account of a Cataract.

Of a Cataract in general.

Authors do not agree about the Nature of Cataracts. Some think the crystalline Humour is affected; others will have it to be a Membrane formed by the Thickening of the aqueous Humour, which adheres to the Edge of the Pupil, and intercepts the Rays of Light.

This Diversity of Opinions must not be imputed to the Obstinacy of their Authors; it may, with greater Presumption, be ascribed to the few Occasions they have had of undeceiving themselves; for, if this Matter be carefully examined, we shall find both crystalline and membranous Cataracts; we may even establish as many Species of Cataracts of the crystalline Humour, as there are Alterations of which that Humour is susceptible.

As to membranous Cataracts, I remark two Sorts: The first proceeds from an Opacity of the Membrane, which covers the Socket of the vitreous Humour which lies behind the Crystalline. The second Sort is subsequent to Inflammations of the Choroides. In these Inflammations a Matter like Pus is extravasated into the aqueous Humour; this Matter grows dry, and forms a sort of membranous Body. A third Sort of Cataract may be added, which is caused by an Opacity of the Membrane which covers the fore Part of the Crystalline, provided this Membrane can be thus affected, whilst the crystalline Humour remains uninjured, of which Experience has not hitherto convinced me; neither am I satisfied, as to that Sort which is said to be caused by a Congestion or Inspissation of the aqueous Humour. I have, it is true, often seen an Opacity, in a small Portion of the Membrane, which covers the fore Part of the Crystalline, without the Loss of Sight, because the crystalline Humour itself, and the rest of that Membrane, remained sound.

Those who have never seen any but membranous Cataracts, have been as much mistaken as those who knew none but crystalline Cataracts. In order to give a more clear Idea of the different Species of a Cataract, I shall divide them into true, doubtful, and false Cataracts.

Of a true Cataract.

Most Moderns define a true Cataract to be the crystalline Humour affected, and not a Membrane formed in the aqueous Humour, as the Antients described it. I adhere to the Moderns; numberless Experiments have evidently shewn the Error of the latter. We still see many persist in the Opinions of those learned Men, who were not infallible: They postpone a Conviction from ocular Demonstration, and manifest Experiments, to the Reasons advanced by those Authors in Behalf of their Opinion.

I was a long time of their Opinion, that a Cataract, curable by the Operation, was a Membrane formed in the aqueous Humour. But two Reflections have entirely undeceived me. The first is on the Manner in which a Cataract is formed, from its Beginning to its full Maturity. My second Reflection is on the Result of the Operation which this Disease requires. When a Cataract begins, it lies in so deep, that it can scarcely be distinguished; thence I conclude, if it was a Membrane, or Inspissation of the aqueous Humour, and it was situate in the posterior Chamber of the Eye, behind the Iris, it might be easily perceived, neither would it appear to lie so far within. Three or four Months after, more or less, the Patients complain of a Diminution of their Sight. When we examine their Eyes, we perceive a Whiteness very deep on the Inside, without any apparent Dimness or Inspissation of the aqueous Humour; this seems to shew, that it is the crystalline Humour which begins to grow opaque. By observing the Patient's Eyes, from time to time, we sensibly perceive the Crystalline advance towards the Hole of the Pupil; and the Sight lessens gradually, till the Cataract comes near the Pupil, which it closes, as a sort of Curtain drawn before a Window, which leaves room for some Light to enter the Chamber, though Objects cannot be distinguished thro' it.

This Reflection seems of Force sufficient to evince, that a Cataract is not a Membrane produced in the aqueous Humour, nor an Inspissation of that Humour; were it so, it would remain in the same Place where it had its Origin, neither would it change its Situation, as I have shewn it does in its Beginning, in its Progress, and in its Maturity.

My second Reflection is taken from the Operation of the Cataract: For when the Eye is pierced, and the Needle thrust in, it happens sometimes, that it enters into the Middle of the Body which forms the Disease, tho', at the same time, it was

directed in such a manner, that it could not penetrate to the Place where the Crystalline is naturally situated; yet, when the Cataract is depressed, and the Needle is raised, there appears, thro' the Hole of the Pupil, an opaque Body, in the Form of the crystalline Humour, adhering to the End of the Needle. Were this Body a Membrane, it would be flat or plaited, and not of a convex Figure: From these Circumstances, we may conclude it is the Crystalline which is depressed in this Operation, together with the Membrane which retained it in the vitreous Humour, before it was affected; for, if it could any way get loose from that Membrane, it would fall of its own Accord to the Bottom of the Eye; but, as it cannot, it must necessarily remain always attach'd to the Membrane which covers it.

That a Cataract is seated in the crystalline Humour, I shall give another convincing Proof, deduced from an Experiment made on the Eye of a Man, who died at the Hospital of the Name of *Jesus*: He had undergone the Operation for the Cataract, in the Hands of Mr. *Woolhouse*. I desired M. *Mery*, of the Royal Academy of Sciences, to come thither, and examine the Eye: He drew the Eye, on which the Operation had been performed, out of the Orbit, opened it, and found the crystalline Humour placed in the Bottom of the Globe of the Eye, at the posterior and inferior Part of the Pupil, to which Place the Operator had depressed it. This proves sufficiently, the Seat of a Cataract is in the crystalline Humour. In the Sequel of this Treatise, all things will appear to corroborate these Proofs. Whosoever desires to be further informed, let him consult the Works of *Brissau* and *Heister* on this Subject, who have detected the Error into which the Antients were led, for want of fully examining this Matter.

These new Opinions engaged the Members of the Royal Academy of Sciences to make several Experiments, in Search of the Truth; and, since that time, several of them have abandoned the Error of the Antients, as may be seen in their Memoirs.

A true Cataract is, then, an Alteration of the crystalline Humour, which loses its natural Transparency, becomes opaque, and at length hinders the Rays of Light reflected from luminous Bodies to pass to the Bottom of the Eye, there to make their Impression; by which means there is no Sight, till the Cataract is either depressed by the Operation, or falls spontaneously by its Weight, as I observed in the two following Cases.

The first happened to one M. *Barthelemy*, Dean of the Account-office; he was about threescore and ten Years old, and lived in *Rue de la Cerifaye* in *Paris*; his Cataract fell of its own Accord, and was lodged in the Place where it is usually depressed by the Needle, so that he could see as well as People do, after the Operation for the Cataract has been well performed.

The second Instance happened, in *Rue de Richelieu*, to an old blind Bitch, belonging to the Countess of *Chamillart*. They were surprised one Day, that this Bitch, contrary to Custom, could see enough to guide herself: As I went frequently to that House, to visit the Abbot *de Guise*, for whom I had couched a Cataract, they shewed me the Bitch; in one of her Eyes I perceived a Cataract half depressed, so that a sufficient Quantity of Light passed to the Bottom of her Eye, and enabled her to see.

After having, as it were, demonstrated the Crystalline to be the Seat of true Cataracts, we must now shew, that the different Alterations of that Humour constitute the different Sorts of true Cataracts.

I admit three Sorts of Alterations of the crystalline Humour in true Cataracts. In the first, the Crystalline becomes soft, and, as it were, mucilaginous. In the second, the Crystalline grows hard and dry. In the third, the inner Part of the Substance of this Humour becomes purulent, whilst the outward Strata, and the Membrane which covers it, serve as a Purse or Cystis for this Matter.

The Situation of true Cataracts is various: Sometimes they advance towards the Pupil, till they are full ripe; then they lie on the inner Circumference of the Iris. At other times, tho' the Crystalline is loosed from the Socket of the vitreous Humour, still it advances very little towards the Pupil, but remains in the Middle of the posterior Chamber, where the Cataract ripens. Persons attacked with this last Species do not entirely lose their Sight; and, tho' their Cataracts be full ripe, they can perceive Objects but in a very confused Manner, because some Rays of Light pass to the Bottom of the Eye, about the Circumference of the Cataract.

Authors have established two particular Sorts of true Cataracts by the Names of the Milky and the Cheesy, but, in this, they were mistaken; for these pretended Species of Cataracts are only the different Degrees of Alteration, which the Crystalline must undergo, before it arrives to a full Ripeness; for which Reason they are seldom found, but when the Cataract is couched too soon.

Cataracts from the Birth require a long Time to ripen. Besides, as Children have not Resolution enough to bear the Needle

Needle to their Eye, they often cause their Eyes to be damaged, and their Sight destroyed. I have seen a like Accident happen to a Merchant's Daughter in *Rue de Thevenot*: At the Age of seven Years she had a Cataract couched by M. Gerrard the elder; for which Reason I let Children alone, till they are ten or twelve Years old, lest I should meet with the same Misfortune.

Sometimes the Centre of a Cataract from the Birth is petrified; there is something in the Middle of the Body of the Cataract, about the Bigness of a Pin's Head, hard and concreted like a Stone. A Noise is even heard, when the Needle, in the Couching, touches that Place, as if it rubbed against a small Pebble-stone. This does not hinder the Patient from recovering his Sight, after the Cataract has been couched.

Of doubtful Cataracts.

I call that Cataract a doubtful Cataract, in which the Success of the Operation is as uncertain, as the Use of topical Remedies. I admit four Sorts: The first is a kind of Membrane, which appears, and is formed, after a purulent Matter has been extravasated into the aqueous Humour. In the Sequel of this Treatise, I shall distinguish this Sort by the Name of a Membranous Cataract. The second Species is called Filamentous, from the great Number of Filaments which compose it. The third is a displacing of the Crystalline from a Stroke received in the Eye. The fourth is an Alteration of the Membrane which covers the Bottom of the Socket in the vitreous Humour.

Of a Membranous Cataract.

I have already observed a membranous Cataract to be the Consequence of an Ophthalmia of the Choroides and Uvea; their obstructed Vessels emit a whitish Pus into the aqueous Humour; this Pus, by its Viscidity, adheres to the Circumference of the Pupil, and there appears like a fine Cloth. When this Matter is not very copious, it does not entirely close the Pupil; in this Case, if the Fluxion ceases, before it has damaged the Bottom of the Eye, it leaves a sufficient Passage for the Light to make its Impression, so that the Patients see a little, but their Sight is weak; but if the Fluxion reaches to the Bottom of the Eye, and destroys the Action of the Fibres of the Retina, the Sight perishes. I had an Instance of this in the Person of M. *Vilvandé*, who had been attacked by a violent Defluxion on both his Eyes; one of them perished by an Abscess, and the other was seized with a membranous Cataract, which had destroyed his Sight. M. *Woolhouse* promised to restore it, by couching the Cataract. This Patient came afterwards to consult me; but, as I found the Cataract complicated with a Gutta Serena, I assured him the Operation would be of no Service to him. Still he persisted to engage me to undertake it, and, as I was satisfied it would not succeed, I would not perform it, but in Presence of another Oculist. M. *Bailly* the elder was called; he, in Compliance to the Patient, told him, if the Operation did not restore his Sight, it would not injure his Eye.

I performed the Operation, in Presence of this dextrous Oculist; the Cataract was well depressed, Objects were presented to him, but he could not see any of them, tho' the Pupil seemed very clear. When the Bottom of the Eye is not damaged, there remain certain Openings in this Cataract, thro' which the Patients can see. I shall relate two Instances. A Woollen-draper, of the City of *Beauvais*, came to *Paris* to be cured of an inveterate Defluxion on both his Eyes, which hindered him from distinguishing Objects, because there was a whitish Humour placed in the Pupils; a Fortnight after, the Fluxion went off, and his Sight began to return by degrees; for the Matter in the Hole of the Pupil spent itself, and the Patient, by degrees, could see again to read. His Sight, however, continued weak, because the Iris had been contracted by a Part of that whitish Matter, and left but a small Space for the Entrance of the Rays of Light into the Eye.

There is also another kind of Effusion of whitish Matter into the aqueous Humour, which places itself behind the Hole of the Pupil, and there remains till the Defluxion ceases. I have seen this Case, in one M. *Lomery*; I attended him, in the Year 1713, when he had a violent Defluxion, neither could he see at all with the distempered Eye. There appeared, behind the Hole of the Pupil, a sort of purulent Cataract, which, as soon as it attain'd a certain Consistence, fell to the Bottom of the Eye, with which he could see very well afterwards.

These Examples shew a membranous Cataract has three different Places of Situation: 1. When it closes the entire Pupil, and adheres to its Circumference. 2. When the Cataract, tho' adherent, stops only Part of the Hole of the Pupil. 3. When the Matter, which forms the Cataract, floats in the aqueous Humour, behind the Iris, without sticking to it; and, when the Defluxion goes off, it falls commonly to the Bottom of the Eye; for if it adheres to the back Part of the Pupil, it forms a membranous Cataract.

From what I have now said it is plain, that I admit of membranous Cataracts, which proceed from Abscesses of the Cho-

roides or Uvea, which discharge their Matter into the aqueous Humour. The more liquid Part of this extravasated Matter mixes with the aqueous Humour, whilst the more solid Part gathers together, and settles in the several Places I have mentioned. If this Matter remains behind the Iris, it will form a Cataract like a Membrane, without engaging the Crystalline; and this I call a membranous Cataract. The Success of the Operation, in this kind of Cataract, is not to be doubted, provided the Defluxion, which caused the Abscess, has not destroyed the essential Parts of Vision, which yet happens but very seldom. This Species of Cataracts is very rare; for which Reason I assert, that almost all Cataracts, in which the Operation succeeds, consist in an Alteration of the Crystalline.

Those who assert, that none but membranous Cataracts are reliev'd by the Operation, have not hitherto given any convincing Proof of their Opinion. Had they opened an Eye, and found the Crystalline entire, after the Death of a Person on whom a Cataract of this Sort had been couched, and who had seen, after the Operation, his Crystalline remaining without any Alteration; they would have some Foundation to defend their Assertion; and they might justly claim our Assent, could they produce several Experiments of this Sort well attested. They have only given us a Dissection of some Eyes, on which the Operation had never been performed; whereas the contrary Opinion, which maintains, that almost all Cataracts proceed from an Alteration of the Crystalline, is confirmed by an infinite Number of well attested Experiments, made on the Eyes of Persons who had undergone the Operation, and saw, from that time, to their Death; when their Eyes were opened, the Crystalline was found depress'd, together with the Membrane which covers it.

We have also several Experiments made on Persons who lived many Years after the Couching of their Cataracts, where the Body, which had been depressed, having passed thro' the Hole of the Pupil into the anterior Chamber of the Eye, was taken out, by an Incision made in the Cornea Transparent; and, upon Examination, it appeared to be the Crystalline which had passed thro' the Pupil, the Patients having afterwards seen perfectly to read with Cataract Spectacles.

Of a Filamentous Cataract.

I reckon this Species amongst the doubtful Cataracts, altho' it seems to be a true Cataract. It is very properly called filamentous; for, in the Couching of it, the Needle seems to draw off numberless small Filaments. This Cataract cannot be cured by the Operation; for these Filaments cannot be broke. I think this Remark necessary, in order to precaution any one who may meet with a Case of this Nature, which is very rare, not to be surpris'd at it.

Of Cataracts proceeding from Strokes.

Some Oculists are of Opinion, that Cataracts, from Strokes received on the Eye, or the adjacent Parts, are incurable; but I have several Experiments of the contrary. I shall here mention one, in the Person of a Man, named *Constantine*, living in *Paris Rue du Verbois aux Carreaux*: He had been shot, sixteen Years before, in both his Eyes. The small Shot, which had penetrated between the Membranes, came out, from time to time, spontaneously, for the Space of three or four Years which intervened, from the time he received the Shot, to the time of the Operation. By the Violence of the Stroke, the Globe of the Eye was sunk. The Crystalline, together with its Membrane, was loosed, and advanced towards the Pupil, to which it seemed to adhere on the Side of the little Angle, where one of the small Shot had penetrated the Iris at its Union with the Cornea Transparent; the Pupil itself became oblong on that Side. The Iris had no Movement, either of Dilatation or Contraction; yet this Man could perceive, on that same Side, the Shade of a Hand placed between his Eye and the Light. This determined me to perform the Operation, about twelve Years ago; since which time, he has seen with that Eye, as well as if the Cataract had proceeded from an inward Cause. What is more surprising, after he had been shot in this manner, he lost the Sight of his other Eye, tho' nothing appeared in the Humours, that could darken it; and, a Year after the said Operation, the Sight of it was restored, without any Application.

When the Eye receives a violent Stroke, the Crystalline is loosed immediately, and, in two or three Days, it becomes opaque, so that the Patients can only just perceive the Light.

These Cataracts have three different Situations: 1. When the Crystalline, already loosed by the Stroke on the Eye, advances towards the Pupil. In this Case, if it grows dry before it touches the Iris, it falls of its own Accord, and the Patients can see again, without any Operation; but, when placed behind the Iris, if then it adheres to the Iris, the Operation is necessary. This is the second Place of Situation for these Cataracts, when the Crystalline advances, and adheres to the Pupil. The third Place is, when the Cataract passes altogether into the anterior Chamber, and is placed between the Cornea Transparent

Transparent and the Iris ; from whence it must be taken out, in the manner that shall be described in the Sequel of this Treatise.

Of a Cataract, caused by a Defect in the Membrane, which covers the Socket of the Vitreous Humour.

I reckon, amongst doubtful Cataracts, those caused by a Defect in the Membrane, which covers the Bottom of the Socket in the vitreous Humour. In this Sort, the Sight is not altogether lost, it is only weakened : In this Case there appears, thro' the Hole of the Pupil, a Whiteness which is thin and flat, and seems to be the Membrane, which covers the Bottom of the Socket of the vitreous Humour, degenerated. It often assumes the Form of a Star, leaves some Intervals without Opacity, and some opaque ; so that this Opacity, which affects only the concave Part of the Socket, propagated from the Centre to the Circumference, appears like a Star. In this Disease, the Crystalline is not loosed, and the Sight, tho' weak, subsists.

Of false Cataracts.

Those Cataracts are called false, in which Remedies afford no Relief, and in which the Operation is intended only to remove the Deformity, or Pains, which attend them. I reduce them to two Sorts, the Glaucoma, and the Shaking Cataract.

Of a Glaucoma.

That Disease is called Glaucoma, in which the Crystalline is of the Colour of Sea-water. I am convinced, by my own Practice, that it is only of that Colour in its Beginning ; for, afterwards, it becomes whitish, or greyish. There are various Opinions concerning this Disease, both as to its Origin and Situation. Some have judged it to be simply a Depravation of the Crystalline ; and others, of the vitreous Humour. I have found, by an Inspection of Eyes afflicted with this Disease, a sort of Depravation in the Crystalline, which was consequent to a Palsy of the visual Nerves, which first appears by a Dilatation of the Pupil.

The Signs of a Glaucoma, in its Beginning, are a Smoak and Mists, which seem to pass before the Patient's Eyes, and confuse their Sight. They still can see Objects, but imperfectly, and only at the Corner of their Eye, because some Fibres remain not totally obstructed. The Sight decays by degrees, and the Patients can only just distinguish the Light ; then the Crystalline begins to degenerate, loses its Transparency, and, at first, assumes the Colour of Sea-water. As it grows more solid, it changes its first Colour, appearing like a Cataract, sometimes of one Colour, and sometimes of another, as I have already observed. This is what I call a Glaucoma, which differs from a true Cataract, by its Complication with a Gutta Serena. A Glaucoma begins sometimes after the Crisis of a Fever, in which the morbid Matter is remov'd to the Eye, and causes an Inflammation in all the Membranes, except the Conjunctiva, which is but slightly affected ; the Patients feel an acute Pain in the Bottom of the Eye, and in the Temples ; a Gutta Serena follows this Fluxion, and a Glaucoma ensues.

Sometimes the solar Rays, falling suddenly and violently upon the Eye, produce this Disease ; as I saw, in the Year 1717. happen to a Commander of the Order of *Malta* : He had suffered for a long time, from such an Accident, violent Pains in his Head and Eye, which were followed by a Glaucoma.

This Disease is sometimes produced by a viscid Humour, which creates Obstructions in the Bottom of the Eye, and in the Crystalline, by which a Gutta Serena, and a Cataract without Pain, are formed, to which a Glaucoma succeeds.

Old People are deemed subject to this Disease, because their Crystalline appears dry, which hinders them from seeing Objects perfectly, tho' they can distinguish them. I saw two Persons, who had their Crystalline so opaque, that they seemed to have true Cataracts, and in Appearance they could not see ; these Persons, however, were able to read.

I do not take this Dryness of the Crystalline to be a Glaucoma, because the essential Parts of the Sight remain sound, whilst the Crystalline grows dry : In this State, the Light penetrates to the Bottom of the Eye, finding a Passage round the Crystalline ; so that the Patients, notwithstanding this Opacity of their Crystalline, can see and distinguish Objects sufficiently to read Writing. This Disease resembles a Cataract, more than a Glaucoma. If these Persons be attacked with a Gutta Serena, which may come very suddenly, the Pupil will be dilated ; and a Glaucoma, according to my Definition, will be formed.

The Prognostic of this Disease is very fatal ; for, when it is once formed, Remedies are of no Service ; and, when one Eye is afflicted with it, the other is in great Danger.

When this Disease proceeds only from the Dryness of the Crystalline, as in old Men, the Sight continues often all their Lives. 'Tis to these old Men, Eye-bright Wine, and other

Preparations of that Herb, so much recommended by the Ancients, are very serviceable.

Of a Shaking Cataract.

I shall say very little of the Shaking Cataract ; for this Disease is incurable, and the Operation serves only to remove the Deformity of the Eye, and to abate the Pains. The Crystalline becomes like Plaister, and resembles that of a fried Whiting. It rolls from one Side to the other, according to the different Movements of the Eye ; for this Body adheres to some Ciliar Fibres, which keep it suspended in the Middle of the posterior Chamber. In Process of Time, these Fibres break ; then the Crystalline, having no Support, passes, upon the least Motion, into the anterior Chamber ; from whence it must be drawn out, in the manner which shall be taught, in treating of the Operation for Cataracts.

Of the Causes of Cataracts.

Cataracts proceed from internal or external Causes. Those, who have hitherto wrote of this Disease, have not explained, in a satisfactory manner, how it is formed. My Opinion is as follows :

The first Thing, which happens in the Formation of a Cataract from an internal Cause, is the Thickening and Viscosity of the nutritious Juices, which flow into the Vessels of the Membrane that fixes the Crystalline in the vitreous Humour, and into the Vessels of the Crystalline. These Juices, by their Viscidity, stop the Channels through which they pass ; then the Nourishment, necessary to preserve the Tone and Spring of these Vessels, cannot be duly supplied, the Vessels, which should convey it, being obstructed ; for which Reason, the Fluids, which arrive at last, not finding free Passage and Room to circulate, they stagnate, and grow acrid ; thence ensues a total Dissolution of all the Substance of the Crystalline. Hence Abscesses, and purulent Cataracts. If there be not a total Dissolution of the Crystalline, this Humour loses Part of its Fluidity, and is loosed, together with the Membrane which incloses it, from the vitreous Humour. Afterwards it acquires a hard Consistence ; as it grows more solid, it advances towards the Hole of the Pupil, and is pushed forward by a Serosity collected behind it, whether it be the aqueous Humour which glides into that Place, or whether the vitreous Humour furnishes it, as the anterior Cells of the vitreous Humour appear principally filled with it. That a Serosity is gathered between the affected Crystalline and the vitreous Humour, seems to be proved by this, that in couching a Cataract, if any Portion is loosed, it is pushed with Violence into the anterior Chamber of the Eye, as if it was violently forced by some Humour flowing from the Back to the Fore-part.

Wherefore I think, in the Beginning of Cataracts from an internal Cause, there is a Dissolution of the Crystalline, by which it grows soft, and becomes more or less fluid ; for, when we attempt to couch a Cataract, before it is full ripe, the Needle passes thro' it, as thro' a thick Cream, and can never depress it ; whereas, in the sound, natural State of the Crystalline, the Needle meets with a Resistance. We must then conclude, from this Difference, that the Crystalline, at first, becomes soft ; and that there is a Dissolution of it in the Beginning of a Cataract.

It must not, however, be supposed, that all Cataracts are occasioned by a Dissolution of the Crystalline ; for, in some, it grows hard and dry. This last Sort of Cataract may be couched in a short time after it is formed.

It is very difficult to explain, how the Crystalline acquires this Consistence, in so short a time ; yet it is not surprising, since it becomes like Plaister in the Shaking Cataract.

The Colour of the Crystalline, in this Species of Cataract, approaches the Brightness of Quicksilver, somewhat inclining to the Colour of Window-glass. I cannot compare it, on account of its Consistence, to any thing better than to Tale ; for, in couching, when it is pressed by the Needle, it breaks off in Scales, as that Substance does ; this does not hinder the Success of the Operation.

The external productive Causes of Cataracts are Strokes received on the Eyes, and the adjacent Parts ; as also Falls, which give a great Shock to the Head ; Strokes received about the Orbit, which cause a great Concussion in the Eye ; Strokes in the Middle of the Globe, which make the Cornea bend inwards, and which divide the posterior and lateral Parts of those Membranes, which inclose the Humours of the Eye ; so that the Membrane, which joins the Crystalline to the vitreous Humour, is lacerated, and, by its Rupture, occasions the Loosing of the Crystalline.

These Accidents come either by small Shot, as in the above-mentioned Case of the Man called *Constantine* ; or they happen by an infinite Number of other Means too tedious to describe. I shall relate some Cases : One of them happened six Years since, at the *Hôtel of Asturias Rue de Sepulchre in Paris*, to a young Nobleman.

One of his Friends had struck him undesignedly, in the Middle of his Eye, with the End of a small Switch. I was not called, till the Day after the Accident; I found the Crystalline loosed and floating in the aqueous Humour; it was already become opaque, though neither Scratch or Wound appeared on the Outside of the Eye. He could only just discern the Light, with that Eye. Boys, who throws Squibs in the Streets, often cause Cataracts in Peoples Eyes, as they go along: There is something, about the Bigness of a Pea, in the Squibs to rain them; when this Part strikes the Eye, it produces a Cataract by loosing the Crystalline, in the before-mentioned manner. About four Years ago, a like Accident happened, in the *Rue de la Mortellerie* in *Paris*, to a Corn-merchant's Son, about twelve Years old. The Crystalline was instantly loosed, appeared opaque and whitish, the next Day after the Stroke.

The Stab of the Point of Scissars may instantly loose the Crystalline; a few Days since, a like Accident befel a young Girl, twelve Years old.

The Point of her Scissars had struck and penetrated the Cornea Transparent; the next Day, when I examined her Eye, I found the Crystalline loosed and opaque.

A Pin, or any thing which can prick the Globe of the Eye, may produce a Cataract, as happened, last Winter, in the Community of the Nuns of *St. Genevieve quay de la Tour-nelle*: As one of them was shaking her Apron, a Pin run into her Eye, at the Place the Puncture is made in couching a Cataract. It entered very deep, and had pricked the Crystalline; violent Pains ensued, and, when they were alleviated, I discovered a Cataract to be formed.

I saw another Instance of a Cataract, proceeding from the Blow of an edged Weapon on the Middle of the Pupil. The Crystalline was loosed from the vitreous Humour, and placed in the posterior Chamber of the Eye, at the Place where true Cataracts lie; the Point of the Weapon past through the Cornea, penetrated to the Crystalline, and wounded it, so that the Cataract was join'd to the Wound of the Cornea, by the Intervention of a whitish Matter, which flowed from the Crystalline. Three Years after the Stroke, the Patient applied to me: I examined his Eye, found the Parts in the Bottom to be sound, and that he would see, if his Cataract was couched; for which Reason, I passed the Needle to it: The upper Part of the Cataract gave way, and was depressed; but, as I observed it firmly adhered to the Cornea Transparent, and that it drew the Cornea with it, I could not break it with my Needle, and so could not depress it below the Adherence. At that Time, I made use of the round Needle: Had I then, as I now have, a Needle edged and flat, I could have cut the Adherence with its Edge, and perfectly succeeded. It may, perhaps, be objected, that these Sorts of Cataracts which come by Strokes, and loosen the Crystalline, are only a whitish Juice extravasated into the aqueous Humour, by the Rupture of some Vessels of the Globe, and placed behind the *Iris*; so that I am mistaken in supposing this whitish Juice to be the Crystalline.

To this I answer: The Distinction is easily made, provided the Blow has not tore some of the Blood-vessels; for, if the Eye be inspected, a few Days after the Blow, the Cataract may be seen, through the Hole of the Pupil, of a round convex Form as the Crystalline is; it has even some Consistence, which it would not have, if it was only a whitish Juice extravasated.

Besides, this whitish Juice cannot be discharged into the aqueous Humour, but by the Rupture of some Vessels, so that it ought to be mixed with Blood; but, in order to prove this Cataract is not occasioned by a whitish Juice poured into the aqueous Humour, it is never mix'd with Blood. Indeed, when the Vessels, or Membranes, are torn by a Blow which has loosed the Crystalline, some Blood appears in the aqueous Humour, but never any is seen in the Crystalline, as there should be, if what I take to be the Crystalline is only a whitish Juice; for, when this Blood is dispersed by proper Remedies, the Cataract is seen floating in the aqueous Humour, without any Tincture of Blood. We must therefore conclude, that this Sort of Cataract is not occasioned by that pretended Juice, and that it is certainly the Crystalline loosed from its Socket; for it often falls spontaneously to the Bottom of the Eye, in the same Place to which the Operation reduces it; and then the Patients cannot see to read, but with Cataract-Spectacles; which is a manifest Proof, that it is the Crystalline which is loosed, since these Spectacles are designed to supply its Place.

This Account of a Cataract, from an external Cause, appears to be very rational. When the Crystalline Humour is detach'd from its Place, and the Vessels, which supply it with Nourishment, consequently broke, it is manifest, that it must very soon become opaque.

Of the Signs of Cataracts.

When a Cataract begins, and the Chancels of the Crystalline Humour are obstructed, the Light, which enters the Eye, falling on the obstructed Vessels, makes a Shadow in that Part

of the Eye, on which the Rays of Light should fall; hence those Flies and Cobwebs in the Air before the Patient's Eyes floating here and there, according to the Motions of the Eye; these Shadows assume different Figures, according to the Number of the obstructed Vessels of the Crystalline, and according to their different Dispositions, as the Appearance of Hairs, Dust, Cobwebs, and Flies.

It is difficult to know a Cataract in its Beginning; for the preceding Signs are almost the same with those of other Diseases of the Eyes; for these Flies, or Shadows, may be formed by the Relaxation of the Vessels of the Retina: As they are, in some Places, separated from the Choroides, the Light cannot make its Impression on those Parts, so that a Sort of Shadow is form'd on the Choroides.

There is likewise a false Suffusion, attended with the Appearance of an infinite Number of Atoms in the Air; but the Sight is not shortened, in either of these Diseases.

These are the certain Signs of a beginning Cataract: The Patients perceive, in a short time, the Sight of their diseased Eye to grow much shorter; they cannot see as distinctly at a Distance, as they could before their Eye was attacked; they find their Sight sensibly diminish every eight Days.

But, as soon as the before-mentioned Dissolution of the Crystalline supervenes, the Whiteness and Opacity may be perceived to sink into the posterior Chamber of the Eye, where the Crystalline is lodg'd; then the Inspection of the Eye clearly shews the Cataract, which could not be known before, but from the Account the Patient gave of the Diminution and Weakness of his Sight.

Having now related the Signs by which a Cataract may be known, we must propound those which distinguish the different Degrees of its Maturity. These Signs are three in Number: First, When the Cataract appears, in every Part, of an equal Opacity; for, when the Opacity is not equal, looking thro' the Hole of the Pupil, some Places appear more solid and opaque than others.

The second Sign is: The Patient being placed with his Back to the Light, and an Object presented to him, if he can distinguish it, his Cataract is not full ripe, unless it be one of those Cataracts, in which the Crystalline remains in the Middle of the posterior Chamber of the Eye.

The third and most certain Sign is: Let the Operator examine the diseased Eye exposed to the Light; if he finds the Crystalline of an equal Opacity, let him close the Patient's Eyes with his Thumbs, then rub the upper Lid of that Eye which has the Cataract, and, keeping the other Eye shut, let him open the Lids; if he finds the Light, which falls on the Pupil, makes the Iris contract, and, tho' exposed to the same Light, it dilates to the Half, or the Quarter, of that Degree to which it was contracted, he may be assured the Cataract is ripe. I do not know any Author who has described the Signs, by which a membranous Cataract may be distinguished from that Sort produced by the Depravation of the Crystalline Humour; yet this Distinction is very necessary, to prevent the mistaking one for the other in the Operation. The Distinction may be thus made: If it be a membranous Cataract, it will appear flat, and a Hollow may be sometimes perceived in the Middle of it; whereas, in that produced by the Crystalline, if you look through the Hole of the Pupil, you may distinguish a lenticular Form, more elevated in its Middle, than in its Circumference.

It is not sufficient to have described the Signs which shew the Maturity of a Cataract; it is likewise necessary to speak of those, by which we may be assured the Patients will see, after the Cataract is couched. These Signs are taken from the Disposition of the Eye, and the Nature of the Cataract. The first Point is to examine, whether the Organs of Vision are sound and well disposed: This may be known by the Facility the Iris has of contracting and dilating, as we have already observed; for, if there be no Motion in the Iris, it is a certain Sign the Patient will not see, tho' the Cataract be couched, except it was occasioned by a Blow which wounded the Iris; for then, if the Hand be placed between the Eye and the Light, the Patient sees the Shadow of the Hand; and, when the Hand is withdrawn, if he perceives a certain Glaring of the Light, it is a Proof, that the Bottom of the Eye is sound.

As to the prognostic Signs deduced from the Eye: In case the affected Eye be either bigger, or less, than the sound Eye, it is a bad Sign; for the excessive Size of the Globe clearly shews, that whatever is extravasated in the Eye, and has reduced it to that preternatural State, has likewise done Violence to the essential Parts of Vision; and that the Eye is attacked with a Gutta Serena, through the Lengthening of its Nerves.

On the contrary, if the Globe be emaciated, it is also a bad Sign; for the Diminution of the Globe proves, that the nervous Parts have been moistened by a sharp, saline Juice, which has decayed them, and intercepted the Course of the Spirits to the Eye. As to the prognostic Signs drawn from the Cataract, they are two-fold; some regard its Age, and some its different Colours,

With

With respect to the Age, we must observe, as the membranous Cataracts grow old, they become adherent, either to all the posterior Parts of the Iris, or only to some Points of its Circumference. On this Difference depend the Changes which then happen to the Pupil; such are certain preternatural Colours, or Wrinkles, which may be seen in it.

The Difficulty, or rather Impossibility, of destroying these Adherences, engaged several Oculists to lay the Operation entirely aside, though it is very practicable, by cutting these Adherences with an edged Needle.

Let the Cataract of the Crystalline be ever so old, it never adheres to the Iris: Indeed, it comes so very near it, that it destroys almost all its Movement. Of whatever Age a Cataract be, the Operator may safely undertake to couch it, (tho' several Authors have asserted the Impossibility of Success) provided he has Dexterity enough to cut the Fibres which oppose its Depression, without damaging the Parts to which they adhere.

It does not seem improper to say somewhat of Barr'd Cataracts. We call that Sort a Barr'd Cataract, which has its Fore-part cross'd by one or more Fibres: These Fibres are variously placed. As these Cataracts seldom attain to a Consistence, which will admit of their being surely couch'd, there is often found in the Body of them a whitish, and sometimes a yellowish Matter; which runs out instantly in the Operation, and, mixing with the aqueous Humour, renders it turbid. This Matter commonly acquires a certain Consistence, and, remaining in the aqueous Humour, it obstructs the Passage of the Rays of Light, as much as it did before it was couch'd: Then, if it does not fall spontaneously to the Bottom of the posterior Chamber, a second Operation, six Weeks after the first, is necessary, in order to depress this new Sort of Cataract, which then will have a Consistence sufficient to bear the second Application of the Needle.

As to the Colours of Cataracts, I am convinced, from Experience, of whatever Colour they are, that the Operation always succeeds, provided they have the Signs of Maturity, and there is a good Disposition of the Eye. It may, however, be observed, that, of all Colours, the Blue-grey succeeds best; those of a Sky-colour'd White, those of a shining Silver Colour, somewhat inclining to that of Window-glass, and the White, approaching that of Sea-water, are to be preferr'd, in the next Place. The Ash-colour'd, those of a leaden Colour, the Reddish, or Chestnut-colour'd, or those of a snowy White, are difficult, and dubious in their Success; as are likewise those which have their Fore-part cover'd with Blood-vessels.

The false Cataracts, in which the Operation serves only to remove the Deformity, are those which are white, and like Plaister, or which resemble white polish'd Ivory, or a Hail-stone.

Mr. *Sharp* differs, in some respects, from *St. Yves*, in his Sentiments relative to a Cataract. As this is a Subject of some Importance, it may be of some Service to the Reader to know wherein they disagree, and wherein they are of the same Opinion.

The Mathematicians having observed, in those who have been couch'd, that the Defect of Sight, remaining after the Operation, answers nearly to what, in Optics, the removing the crystalline Humour would occasion, have endeavour'd to prove, that the Operation must, in consequence, be the depressing that Humour, and leaving the Eye to perform its Function afterwards with the aqueous and vitreous Humours only; which, wanting the Density of that Humour, will not refract the Rays sufficiently to re-unite them on the Retina; whence Patients, after their Cure, are obliged to use convex Glasses, as Substitutes for the depress'd crystalline Humour.

Petit, a most accurate Anatomist of *Paris*, has, from a critical Examination of the Figure of the Eye, argued against the Possibility of a Film's Existence in the posterior Chamber, by reason of the Smallness of that Chamber, or Proximity of the crystalline Humour to the Back of the Iris; and, again, from the Impracticability of dislodging such a Film, without offending the sound crystalline Humour.

Lastly, and what is more certain, Anatomists have frequently dissected the Eyes of Persons under this Disorder, after their Death; and have found it to be always an Opacity of the crystalline Humour, agreeable to the Definition of a Glaucoma; so that, by consequence, we must understand the Words *Cataract* and *Glaucoma* as synonymous Terms, since they are, in Fact, but one and the same Disease.

In describing the Nature of a Cataract, it has been hitherto a positive Maxim, laid down by Oculists of every Nation, that there is one certain Stage of the Distemper, in which only the Operation is proper; and this State of the Disease is said to be the Maturity of the Cataract. They have compared it to the Ripeness of Fruit, and have supposed a regular Change in the Consistence of the crystalline Humour, from the Moment it is affected. They say the Disease, upon its first Invasion, gradually liquefies the Humour; and that, after its Arrival to the utmost Period of Liquefaction, it then begins to acquire various Degrees of Tenacity, till at last it becomes perfectly hard, or, as they style it, horny: That the Skill of the Surgeon

discovers itself by fixing on that Time for the Operation, in which the Fluidity of the Cataract is no Obstacle to the Depression of it, from its Want of Resistance to the Needle, nor its Hardness, from the Elasticity of its connecting Fibres, which, not being thoroughly broke, immediately return it to its former Position.

This, in a few Words, is the general Doctrine; but I think, the regular Alteration of the Density of the crystalline Humour is very much to be doubted; and, for my Part, I cannot help positively excepting to the Rule here laid down, having not only seen Cataracts, of twenty or thirty Years Growth, often, upon the Touch of the Needle, prove soft and milky, but also many Instances, in which a due Degree of Consistence occur'd after four or five Months, I may venture to say Days, when the Cataract was the Consequence of a Blow or Puncture; both which Cases so little correspond with this supposed Change, that they seem not only to overthrow it, but to imply, that the Cataract, after it has acquir'd its total Degree of Opacity, may frequently, if not generally, continue in the same State of Tenacity to the Life's End. And tho' I will not take upon me to affirm, that Cataracts come always very early to their greatest Consistence, yet this we may safely deduce from these Observations, that, whenever they become entirely opaque, we may properly undertake the Operation; which has been my Method of Practice hitherto, nor do I find any Reason to lay it aside.

Since, then, the Glaucoma is no other Disease than the Cataract, we must, at once, discard the Distinction of these two Distempers as merely imaginary; and, from what has been said with regard to the Consistence of a Cataract, that, whatever it be, the Removal of the Humour is the sole End of the Operation, the Distinction of a true and false Cataract will appear equally frivolous, and consequently most of the Subdivisions comprised under this last, such as the Bag, the Milky, the Purulent, the Doubtful, the Membranous, the Fibrous, the Shaking, and many more in the Books on this Disease; the greatest Part of which are Names that puzzle the Memory, without informing the Understanding, and, indeed, have not a sufficient Foundation in Nature; but owe their Diversity of Character more to the Imagination of Writers, than any real Variety in the Disease.

The general Criterion of the Fitness of Cataracts for the Operation is taken from their Colour! The Pearl-colour'd, and those of the Colour of burnish'd Iron, are esteem'd proper to endure the Needle. The White are supposed milky, the Green and Yellow horny and incurable. The black Cataract is describ'd by most Authors; but, I dare say, it has been mistaken for a Gutta Serena, where, no Disease appearing, the Pupil seems black, as in a natural State of the Eye: And, as to the green one, I have not, as I remember, in a great Number of Cataracts, met with a single Instance of it; but possibly it may be in Nature; and one would, indeed, imagine the Describers of it could not be mistaken, in what must have been so evident.

The Depression of a Cataract, of any Colour, would be the Cure, if that alone was the Distemper of the Eye; but it generally happens, that the yellow ones adhere to the Iris so firmly as to become immoveable: Besides, when they follow in consequence of a Blow, which is often the Case, either the Cells of the vitreous Humours are so much disturb'd and broken, or the Retina affected, that a great deal of Blindness will remain, though the Cataract be depress'd, and that one Cause removed.

To judge whether the Cataract adheres to the Iris, if you cannot at once distinguish it by your Sight, shut the Patient's Eye, and rub the Lids a little; then, suddenly opening it, you will perceive the Pupil contract, if the crystalline Humour does not prevent the Action by its Adhesion: And when this is the Case, in any Kind of Cataract, the Operation can hardly be advis'd; tho' I once did it, with Success, on a Person who had been blind thirty Years. It is the only Trial I ever made on a Cataract I ever knew to be adherent; and I should not have been tempted then, but that it look'd very firm, and I thought the Adhesion slight, as in Fact it proved.

Another Consideration of the greatest Moment, before undertaking the Cure, is to be assur'd of the right State of the Tunica Retina, which is very readily learnt, where there is no Adhesion of the Cataract, from the Light falling between the Iris and crystalline Humour; which, if the Eye is not sensible of it, is a certain Indication of another Malady, and absolutely forbids the Operation. Generally this Cataract takes its Rise from Head-achs, Convulsions, and nervous Disorders.

The Operation of the milky Cataract has been, by some Writers, falsely said never to succeed. Of this there are two Sorts, some which are almost uniformly soft, and admit the Needle thro' them as thro' Water, consequently are immoveable; and others where the Humour is liquefied, and contain'd in its own Membrane, now pretty much thicken'd by the Disease, which last frequently does well; for, upon breaking the Membrane, the Fluid bursts out, and precipitates; and the Membrane

Membrane itself, if it is not depress'd, in Process of Time, shrinks into a small Compass, or wastes quite away.

Whether the whole Cataract, after its subsiding, continues to lie at the Bottom of the Eye, or is quite wasted by being separated from its Vessels, I have never had an Opportunity of knowing positively, by dissecting one that has been couch'd; but, by what we see of those, that have not been totally depress'd below the Pupil, and continue in that State for ever after, we may suppose, that they only waste a little. I know one Instance of a Woman, whose Cataract, after couching, became quite loose in the Eye, and, in an erect Posture, sunk to the Bottom; but, by flooping the Head forward, she could bring it quite over the Pupil. *Sharp.*

Of what is to be done before the Operation of the Cataract.

As I have describ'd the Nature of a Cataract, its different Causes, the Signs of its Maturity, and those which foretel the Success of the Operation, it now remains to examine, whether the Patient be in a Condition to undergo the Operation; for, if he has a Head-ach, Fever, or any other Disorder, they must be remedied before it. Above all, you must avoid undertaking it too soon; for some Cataracts are four Years, others five, before they are full ripe. The Misfortune is, Persons afflicted with this Disease are desirous to see, and have not Patience to wait so long a Time. There are likewise Operators, who, for the sordid Love of Money, couch them as they find them, ripe or not ripe. They flatter the poor Patients with the Hopes of restoring their Sight speedily: These are easily seduced by the pleasing Bait; and the Desire of Gain prevails with the Operator, who prefers his present Interest to his future Reputation, and hazards a doubtful Operation, lest he should lose his present Practice.

A Cataract is like a Fruit which must be suffer'd to ripen on the Tree: If it be gather'd, before it is ripe, the Stalk must be broke; but, when it is full ripe, it is easily pluck'd from the Tree, and sometimes falls of its own Accord. If the Operation be anticipated, or perform'd before the Cataract is full ripe, the Needle either passes without Success through the Body, which is to be depress'd, by reason of its Softness, or the Ciliar Fibres are not dry enough to be broke with Ease by the Needle, so that they are forcibly tore: This violent Motion is communicated to the rest of the Eye, and brings on a terrible Inflammation, which often destroys the Sight. Tho' this Accident should not happen, we are still oblig'd to a second Operation, in order to depress what remain'd after the first. The Operation for the Cataract is of some Importance, and may have fatal Consequences. Its Success requires a great Dexterity in the Operator, and an entire State of Mind and Body in the Patient: He must be prepared, before the Operation, by Bleeding, Bathing, cooling Broths, and gentle Purges.

The most temperate Weather must be chose, as the Spring and Autumn Seasons; but the Spring is preferable, because a fine Season follows, which is otherwise with respect to Autumn. I know this Operation may be perform'd at any Time of the Year; but the Time I propose is always the most convenient for the Patients.

A fine serene Day must be chosen; for moist Weather is bad for the Patients, the Glandula Lacrymalis then furnishing a great Discharge of Serosity, which draws very obstinate Defluxions to the Eye.

Thunder is likewise very prejudicial, in the first Days of the Operation, on account of the violent Emotion it excites in the Humours of the Eye.

Of the Manner of performing the Operation for the Cataract.

All the before-mention'd Precautions being observed, the well Eye must be cover'd with a Compress, kept on by a simple Bandage: Let the Patient be placed fronting the Light; the Operator must be seated directly before him, and somewhat higher. They must be both so placed, that the Head of the Operator may not shade the Eye which has the Cataract: Let him put the Patient's Legs between his own, in order to be very near him; let an Assistant, placed behind the Patient, lay his Left Hand on his Head, and his Right under his Chin (supposing the Operation is to be perform'd on the Left Eye); then, leaning the Patient's Head on his Breast, let him hold it firm, that the Patient may not give it any Motion. Let the Operator raise the upper Eye-lid with the Fore-finger of his Left Hand, and let him keep the lower Lid down with his Thumb; then let him take his Cataract-needle, which must be flat and edged, for Reasons to be given hereafter; let him hold it in his Right Hand, almost in the same manner a Writing-pen is held, so that his middle Finger may bear on that Part which is distant, about a Finger's Breadth from the End of the Handle. Afterwards let him lay his Ring Finger and his little Finger on the Temple of that Side he is to operate on, desiring the Patient to turn that Eye towards his Nose; then let him make his Puncture in the White of that Eye, about half, or, at most, a Line's Distance from the Cornea Transparent,

avoiding the Blood-vessels on the Conjunctiva, and turning the Point of the Needle from the Iris, to hinder its being injured. As soon as the Point of the Needle, which ought to enter horizontally, on account of its double Edge, has pierced the Membranes, let him direct it strait towards the back Part of the Cataract, without turning his Needle round. He must then push it forwards, till the Point arrives beyond the Middle of the Pupil, which may be known by pressing the back Part of the Body of the Cataract with the Point of the Needle: And, to avoid damaging the Membrane of the vitreous Humour, he must likewise direct the Point of his Needle towards the Body of the Cataract. Afterwards let him raise the Point of his Needle to the upper Part of the Cataract, which he must gently depress below the Pupil, as near as he can to the back Part of the Iris. He must then raise his Needle, without drawing it out; and, to be assured, that all the Insertions of the Cataract are destroy'd, let the Patient cough, and, if the Cataract springs up again, it must be instantly depress'd; if it does not rise again, let him turn the Point of his Needle down, and press once more on the Body of the Cataract, avoiding pricking the Membrane of the vitreous Humour; for, if this Humour should be loos'd, the Loss of Sight may ensue. Let him close the Eye-lids, and draw out his Needle gently.

If the Operation is to be perform'd on the Right Side, the Left Hand must be used. The Assistant must likewise place his Hands in a Manner contrary to that we have describ'd.

When the Operation is finish'd, let a Compress be wetted in a Mixture of common Water, just warm'd, ten Parts, Spirit of Wine, one Part; let the Compress be squeez'd, that some of this Mixture may drop on the Puncture: Let the Compress, and another over it, be laid to the Eye. The sound Eye must be dress'd in the same manner. These Compresses must be kept on by a simple Bandage, which must lie only on the upper Part of the Compress which is on the Eye-brows. Let the two Ends of the Rollers be pinn'd to the Patient's Night-cap.

The Patient must be put to Bed, with two or three Pillows at his Back, to keep him raised, and, as it were, sitting up. The Bed-curtains, Window-curtains, and Window-shutters, must be shut, to hinder the least Light from coming into the Room: He must be left quiet, neither must he speak to any one. The Compresses must be sprinkled, every Hour, with the same Mixture warm'd; and, at this Time, the Light must be placed behind the Patient, so that it may not affect his Eyes. Three Hours after the Operation, let him take Broth; and, three Hours after the Broth, let him lose some Blood. For three Days he must live after this manner, taking Broth every three Hours. About the fourth Day he may eat a stronger Soup, and continue it to the seventh or eighth Day, when he may be allow'd to return to Meat.

The Compresses must be taken off the Eye Morning and Evening; and some of the Mixture of Water and Spirit of Wine, warm'd, must be put into the Eye. About the fifth Day, the Dressing may be removed from the Eye which was not couch'd, provided no Accident has happen'd to the other: If the Patient can see with that Eye, let a dry Compress be laid to it for five Days; but, if he cannot see with it, let it be exposed to the Air, without applying any thing to it.

Nine Days after the Operation, the Eye, which was couch'd, may be cover'd with a dry Compress, pinn'd to the Cap. That the Eye may be accusom'd to receive the Light under the Compress, a small Light must be admitted into the Patient's Chamber, such as may suffice for People to see each other; and the Eye must be habituated gradually to the Light.

Some Persons cannot remain lying on their Backs: In this Case, I have them placed, with their Feet raised on a Stool, in an easy Chair, surrounded with Curtains, and there they remain four or five Days: Then I order them to lie down, when they can keep in Bed, letting them sit up, or lie down, as they find themselves wearied by the same Situation. Some are so heated by lying on their Backs, that, were they kept long so, they would have a Fever, which might draw fatal Defluxions to the Eye; for which Reason, I desire them to rise in four-and-twenty Hours, and order them to be placed in an easy Chair by their Bed-side, with the Bed-curtains drawn round them. Care must be had, in lifting them up and down, that they always keep their Head raised, and that they make no Efforts in these Removals.

The Needles, for the Operation of the Cataract, are different; they are either flat or round. The flat ones enter better, and with more Ease, into the Eye. Some would have them edged, like those which Surgeons use. I have invented a very convenient Sort; their Point is like that of a Lancet; their Edge is not above the Length of a Line, from whence it ceases to be flat, and becomes round. The Point must make the Aperture as wide as is necessary, for the Needle to be push'd forwards, or drawn back, in the Orifice, without any Impediment from the Membranes, as we are sometimes oblig'd to do, in order to depress some Parts of the Cataract, which lie more or less remote in the Eye.

Of the Manner of Operating, when the Cataract lies in the Chamber of the aqueous Humour.

When a Cataract has pass'd into the anterior Chamber of the aqueous Humour, a particular Operation must be perform'd; but, before I explain the Method of doing it, I shall shew by what means a Cataract may pass thro' the Hole of the Pupil, and be lodged between the Iris and the Cornea Transparent.

Three Sorts of Cataracts pass thro' the Hole of the Pupil: In the first, the Consistence of the Crystalline is soft; in the second, it is hard and concreted, like a Stone; in the third, it is partly soft, and partly petrified. When it is soft, the aqueous Humour, which lies behind this Body, thrusts it forwards, and fixes it in the Pupil, after the Manner I have describ'd, when I treated of Cataracts in general: But, when this Body is hard, as in the shaking Cataract, it passes at once thro' the Hole of the Pupil, upon the least Effort made in bending the Head, for Instance, in blowing a Fire, &c. This last Case may happen in a Cataract which has been couch'd three or four Years.

When you design to perform this Operation, to draw out the Crystalline which has pass'd in the foregoing manner, the Patient must be seated in a Chair, with his Eye fronting the Light: Open both his Eyelids, with your Thumb and Forefinger; then, with a sharp-edged Lancet, divide the Cornea Transparent, a little below the Middle of the Pupil. You must continue your Incision transversely, from one Side of the Cornea to the other, in such a manner, that you do not leave, of each Side, above half a Line's Breadth of the Cornea Transparent undivided. Then introduce a fine small Scoop thro' the Orifice, convey it behind the Crystalline, and, with it, draw out that Humour thro' the Incision made in the Cornea. Lay a Compress, moisten'd with some proper Defensive, to the Patient's Eye, and dress the Eye, as in a true Cataract: Afterwards let the Patient be carried to his Bed, and laid on his Back. His Head must be rais'd a little. The next Day you will find the Wound cicatrize, and form a Scar no broader than a Hair. Altho' I have perform'd many of these Operations, I shall, however, confine myself to three Examples, one of each Sort of Cataract which is lodged in the anterior Chamber of the Eye.

The first was in the Year 1707. in the Presence of M. Mery, a Member of the Royal Academy of Sciences: I perform'd it on a Merchant of Sedan; he came to Paris, on account of a shaking Cataract, which had passed, thro' the Hole of the Pupil, into the anterior Chamber of the aqueous Humour. The Cataract, by pressing very much the Iris, occasion'd violent Pains in his Head, attended with want of Sleep, for three Months before. At that Time I never had heard of the like Operation; but, reflecting that I often open'd the Cornea, to discharge the Matter of an Abscess lodg'd behind it, I concluded I might safely do the same, on account of a solid Body; and I operated in the same Manner. The Body which I drew out of the Eye altogether resembled Plaister: I order'd the Patient to lie on his Back: The next Day I return'd thither, along with M. Mery; and we were inform'd, that the Patient slept very well, which he had not done for a long time before. The Wound was cicatrized, and the aqueous Humour, which had run out in the Operation, was entirely repair'd.

The second Case was in the Year 1708. M. Petit, a famous Surgeon, and now a Member of the Royal Academy of Sciences, perform'd the Operation on a Priest. His Crystalline, upon some Effort he had made, some Years after the Couching of a Cataract, had pass'd thro' the Hole of the Pupil, and was lodg'd between the Iris and the Cornea Transparent. M. Petit, who had this Priest under his Care, desir'd me to be present at the Operation; at which M. Mery assisted likewise. M. Petit made a Puncture in the Cornea with his Needle, then slit it with his Lancet, and took out the Body thro' the Aperture. It was found to be the Crystalline. The Priest was, soon after, perfectly cur'd. I met him in Paris a Year after the Operation, and have seen him read very well with Cataract-spectacles. This Fact, tho' related to the Academy of Sciences, was, however, contested by M. Woolhouse, who pretended, in one of his Writings, that the Priest absconded, lest he should be seen and examin'd by him. I hope he will excuse my citing his Name; for I think myself oblig'd to justify the Truth, as being one of the ocular Witnesses of this Operation. M. Mery had this, and the preceding Case, inserted in the Memoirs of the Royal Academy of Sciences for those Years.

My third Experiment was in the Year 1716. on a poor Man living in the Suburbs of St. Germain Rue Cassette: He had receiv'd a Hurt in his Eye, the Crystalline was loos'd, and had pass'd thro' the Hole of the Pupil, between the Iris and the Cornea Transparent. I made an Aperture in the Cornea, thro' which I drew out this Body, which was partly like the White of an Egg, and partly concreted, like a Stone; it adher'd to the Cornea; I cut the Adherency, and took out the Crystalline, which held by one of the longer ciliary Fibres, which I cut with my Scissars as low as possible. The Operation succeeded perfectly, and the Patient was soon cur'd.

VOL. II.

How to prevent the Accidents which attend the Operation of the CATARACT.

It must not be suppos'd, that this Operation is always perform'd without any bad Accidents, whether they arise from the Difficulty of depressing the Cataract; or from some Motion the Patient gives his Eyes, in the time of the Operation. There are, it is true, some Operations, in which a slight Pressure, with the Flat of the Needle, on the Body of the Cataract, separates the same, and it falls almost of its own accord, as a Nut full ripe, which is easily separated from its Husk. There are likewise some Operations liable to very great Difficulties. The first Caution is, to prevent the Extravasation of Blood; for, as the Needle is introduc'd, some of the Vessels spread on the Conjunctiva may easily be open'd. This Blood slides into the anterior Chamber, mixes with the aqueous Humour, and renders it turbid: This makes the Operation more difficult to the Operator.

When this Accident happens, you must endeavour, with all Speed, to depress the Cataract, before the Blood has fill'd all the Chamber: In which Case you must withdraw your Needle, and leave off working at that time, lest you should damage the Patient's Eye, by operating when you cannot see into it.

The second Difficulty is, when the Cataract is of that Species call'd a milky or cheesy Cataract; for the Needle passes easily thro' it, and divides the Body of the Cataract into several Parts of a different Consistence: If these Parts are solid enough, they may be depress'd by moving the Needle, and pressing them down gently; but if these Parts are too soft, you must lay aside the Operation, lest, by over-fatiguing the Eye, you bring on other bad Symptoms. This second Inconvenience always occurs, when the Cataracts are not full ripe. I have couch'd, with Success, Cataracts of five-and-twenty Years standing. This proves the Mistake of some Oculists, who tell their Patients, in order to engage them to undergo the Operation before they are full ripe, that, if they wait any longer, their Cataract will become adherent, and then it cannot be couch'd: A bad Precaution, which has render'd the Operation useless to many Patients!

The third Difficulty is, when, in couching the Cataract, nothing is found, but a Cystis fill'd with Matter; as soon as the Needle presses this Cystis, it opens, and discharges into the aqueous Humour a whitish Pus, which dims it, and hinders the Operator from seeing the Membrane which inclos'd this Matter, so that he cannot finish the Operation. He must, notwithstanding, move his Needle in the same manner as if he had a Cataract to couch; and he must endeavour to place the Cystis below the Pupil. Tho' the Patient cannot see clearly, let him draw out his Needle. The more solid Part of the Matter falls to the lower Part of the Eye; the more fluid Part reproduces a sort of Membrane, which adheres to the posterior Circumference of the Iris, about the Place where the Iris joins the Choroides. Six Weeks, or two Months after, a second Operation is to be perform'd, in order to depress it; then the Patients can see again.

I perform'd two such Operations on both the Eyes of Father Saunier, a Canon Regular of St. Genevieve. The first was in the Year 1713. some Days after Easter; in that Eye I depress'd the Cystis, which contain'd a purulent Matter. A great Quantity of whitish Matter was discharg'd into the aqueous Humour, and obscur'd it: This, however, did not hinder me from depressing the solid Body which inclos'd the Matter. This purulent Matter became more solid, and form'd a sort of fine Membrane. Six Weeks after I couch'd his Eye a second time, and the Patient saw very well after this second Operation. I perform'd my second Operation in the Year 1715. for, as I met with this Accident in the former, I was in hopes, that, by delaying the Operation for two Years, the Cataract would acquire more Solidity: The same thing, however, happen'd in the Operation; and I was oblig'd to perform a second Operation, which had likewise very good Success.

We may infer, from what has now been observ'd, that, in deferring the Operation in this Species of Cataract, we must not wait till they come to a full Ripeness. After the first Operation the fluid Part, which was extravasated in the aqueous Humour, forms a sort of Membrane, which we are oblig'd to depress six Weeks after.

The fourth Difficulty is, when, in depressing a Cataract, it enters into the anterior Chamber of the Eye, passing through the Hole of the Pupil. This happen'd to me, in an Operation I perform'd on a Woman in the Rue St. Honore: Mr. Petit assisted. As soon as I press'd the Cataract with my Needle, a glutinous Matter empty'd itself into the aqueous Humour, and was carry'd, with great Violence, into the anterior Chamber of the Eye, between the Iris and the Cornea Transparent. I continu'd to operate as long as I could; but not being able to bring back the glutinous Matter which had flow'd into the anterior Chamber, I was forc'd to draw out my Needle. Some Months after, all that Matter, which had subsided between the Iris and the Cornea Transparent, repass'd thro' the Hole of the Pupil into the posterior Chamber; and, in some time after, all that fluid

Part

Part was sunk below the back Part of the Iris; then the Patient could see clear, tho' she had not immediately after the Operation.

Whatever passes, during the Operation, thro' the Hole of the Pupil, if it be of sufficient Solidity, the Point of the Needle, which is already in the Eye, must be push'd thro' the Hole of the Pupil, without touching the Iris; then pierce that Body of the Cataract with the Point of your Needle, bring it back to the posterior Chamber, and lay it where it is usually plac'd.

A fifth Difficulty occurs, when the Cataract adheres to certain Filaments, and springs up again, after it is depress'd, as soon as the Needle is rais'd, and returns to its first Place. When this happens, you must raise your Needle a little, pierce the Body of the Cataract with it, and push it to the Side opposite to the Puncture. By this Method, the Filaments, on that Side the Needle enters, are broke, and the Cataract is depress'd: Neither can it rise again; for the few remaining Filaments, which adhere on the opposite Side to the Body of the Cataract, have not Strength sufficient to raise it, nor to resist the Weight of the Cataract, which draws them down.

The Case, now related, happens often in the Operation; for, when the Needle presses the Cataract, the Filaments, to which its upper Part adheres, break easily, whilst those on both Sides only give way; so that, as soon as the Needle ceases to press down the Cataract, it rises by means of these lateral Filaments, which at first had only given way: Wherefore, as I have already observed, when you pierce the Body of the Cataract, push it as far as you can to the opposite Side, afterwards press it down, then bring it towards the Puncture, not drawing back your Needle, but raise the Handle of it, so that the Point, which is in the Body of the Cataract, may reduce it below the Pupil, where it should be plac'd.

It happens sometimes, when the Needle is rais'd, that the Body of the Cataract sticks to its Point: In this Case turn the Point down, and raise a little your two Fingers, which rest upon the Temple, and give a light dextrous Blow with them on the Temple: As this causes a Shaking in the Needle, it makes the Body, which hangs to it, fall off its Point.

It must be observ'd, that all these Adherences of the Cataract, which render it so difficult to be couch'd, are some ciliary Fibres adhering to the Iris, and to the Membrane which covers the Crystalline; they are call'd, by M. Antoine, the *Concomitants of a Cataract*.

As to the manner of breaking to Pieces, and, as it were, mincing a Cataract with the Needle, this is a very pernicious Method, and never to be practis'd, but when you are mistaken in the Maturity of the Cataract.

The foregoing Discourse shews this Operation is not easy to be perform'd; it requires a steady light Hand; the Operator must be prudent, and cautiously resolute; besides knowing how to depress the Cataract, he must likewise have Skill to handle his Needle, according to the various Accidents which may occur; for, of twenty Cataracts which one may couch, two shall scarce be found entirely alike.

When the Needle is in the Eye, Care must be had not to draw it with Violence forwards; for that Motion damages the Parts of the Bottom of the Eye, and causes very great Defluxions. The Operator must be very attentive to the different Motions the Patients sometimes give their Eyes, in order to guide his Needle according to these Motions; otherwise he may pierce the Iris, cut the Fibres of its Circumference, and, in a Word, destroy the Patient's Eye.

Those Gentlemen who admit only of membranous Cataracts, say it is of great Consequence to know the exact Seat of the Cataract: They assert likewise, that those who are of a contrary Opinion, damage the sound Crystalline, when they introduce the Needle to perform the Operation, and that the Patient's Sight is in great Danger of being lost. To this I answer, first, That we very seldom meet with membranous Cataracts; and, of a hundred one may couch, there shall hardly be found one or two without an Alteration of the Crystalline. In the second Place, if the Method I propos'd, to introduce the Needle into the Eye, be follow'd, it is impossible to prick the Crystalline, unless it be alter'd, or to damage the vitreous Humour, and of consequence, to do any Injury to the Eye; for the Needle is introduc'd upon the Aponeuroses of the Muscles, at a small Distance from the Cornea Transparent; and, as soon as it has pierc'd the Membranes, the Handle of the Needle is turn'd towards the little Angle: By this Method the Point of the Needle bears directly behind the Cataract, without coming near the Crystalline, unless it be disemper'd. Hence I conclude, whether the Cataract be membranous, or not, it does not concern the Operator, whilst he directs his Needle in the Manner I have already describ'd; for the Eye is in no Danger, as those Gentlemen pretend, who allow only of membranous Cataracts.

Having explain'd all the Accidents which happen during the Operation for the Cataract, I must subjoin a Word or two concerning those Cataracts which are subject to become membranous: I find three Sorts of them, the *milky*, the *cheesy*, and the *purulent*.

The milky Cataract contains a Body partly solid, partly fluid. The first is easily depress'd by the Operation, but the Needle passes thro' the fluid Part, which often forms a new Pellicle, which must be depress'd by a second Operation, when it has acquir'd sufficient Solidity. As the Parts of the cheesy Cataract are more solid, the Operation is more successful than in the preceding; but they are both unripe Fruits. If there remains any fluid Part, which does not yield to the Needle, it will generate a Membrane, as the foregoing.

The third Species is a purulent Cataract; for, as I have already observ'd, when the Needle presses it, in order to couch it, a great Quantity of purulent Matter discharges itself into the aqueous Humour: This Matter is of a whitish or yellowish Colour; neither is the Crystalline to be found in its proper Coat. This Sort of Cataract never comes to full Maturity.

Of the Means to remedy the Accidents subsequent to the Operation for the CATARACT.

The first Accident which follows the Operation for the Cataract is, the Extravasation of Blood; for, as the Needle is introduc'd, some Blood-vessels are prick'd: This Blood flows into the anterior Chamber, there stagnates, and dims the aqueous Humour. In order to disperse it speedily, bleed a Pigeon under the Wing, and drop some of the Blood into the Eye upon which the Operation is perform'd: This must be continu'd three Days, Morning and Evening: You must likewise take care to bathe the Eye with Water and Spirit of Wine, applying Compresses, wetted in the same, to the Eye. I prefer this Mixture of Water and Spirit of Wine to a Collyrium made of Plantain and Rose-waters, with the White of an Egg and Alum; for Compresses, wetted in this Collyrium, grow hard and uneasy to the Eye, whereas they are always softish, when moisten'd in the first.

The second Accident is the Weeping, or Flux of Serosity, furnish'd to the Eye, after the Operation, by the Glandula Lachrymalis. This Accident is more or less dangerous, according to the Nature of this Serosity; for, if it be sharp, it brings on a Defluxion, sometimes very violent, with severe Pains in the Head, on the Side on which the Operation was perform'd: These Pains seem to be fixed in the Dura Mater, by the Place which the Patient complains of, which is, all along the inner Part of the Os Parietale, beginning towards the Sutura Coronalis.

I have a long time search'd after the Cause of so acute a Pain in this Place; the most probable which occur'd to me is, the Continuity of the Nerves of the Eye to the before-mention'd Parts, by which the Inflammation is communicated to this Membrane. To prove my Assertion, I say the same Accidents happen in violent Ophthalmies; hence I infer it is no Fault of the Operation, as some pretend, who suppose these Pains proceed from some Nerves being prick'd by the Needle. Were it so, this Accident would not happen in other Defluxions of the Eyes, which are not caus'd by any Operation or Puncture.

When this Accident is attended with a Pulsation in the Ear, such as the Pulsation of an Artery, it is a certain Sign, that the Wound caused by the Puncture suppurates inwardly, instead of suppurating in the outward Parts of the Eye. In this Case the Conjunctiva and the common Membrane, together with the Eyelids, are tumefy'd, and advance between the Eyelids, sometimes to the Thickness of one's little Finger. If this Eminence be pale, it is caused by a Serosity, and may easily be dispersed by scarifying it with a Lancet. If the Tumor be red, it proceeds from an Infarction in the Blood-vessels, which suppurates in the Interstices of the Membranes of the Globe, and afterwards fixes between the Iris and the Cornea Transparent.

As soon as the Flux appears, the Patient must be let Blood in the Arm, in the Neck, or Foot, if requisite; Leeches must be applied about the Eye, and to the Temples; a Blistering-plaster must be laid to the Nape of the Neck: All this must be done with the greatest Dispatch, in order to prevent the Suppuration and entire Loss of the Eye.

The third Accident after the Operation is, when there is an inveterate Defluxion, and the Hairs of the lower Eyelids are revers'd; for, as the Operation requires the Patient's Eye should be kept cover'd a long time, the Skin of the Eyelid is relax'd, by which means the Cartilage is turn'd inwards: Then the Disease call'd Trichiasis ensues, which is the Inversion of the Cartilage of the Eyelids, so that the Points of the Eyelashes bear upon the Conjunctiva and the Cornea Transparent; the continual Friction of the Eyelashes brings on Defluxions, and produces obstinate Ulcers in these Membranes, if not prevented by the following Remedies. I shall relate one Example:

M. de St. Leon, Major of Bauchain, came to me in the Month of July 1718. and had undergone the Couching of a Cataract in the Month of October 1717. He had a violent Defluxion with Ulcers on his Eye, and acute Pains in the upper Part of his Head, above the Eye, and in his Temple, on the Side where the Operation had been perform'd.

I began by bleeding him; afterwards I apply'd, to the Nape of his Neck, the potential Caustery pulveriz'd, and in a sufficient Quantity,

Quantity, to make an Eschar the Breadth of a Crown-piece. I kept this Ulcer open two Months; and, as he was of an hot Constitution, I ordered him to drink the Mineral Waters of *Paffy* for eighteen Days. I performed the Operation of the Trichialis. After the Operation, the Eye-lashes ceased to fret the Eye, the Fluxion and Pains in the Head went off; in short, he was so well cured, in two Months time, that he could see again with his Eye, which he had not done for ten Months before.

The fourth Accident is, when, after the Cataract has been couched, it springs up again, either whole, or only a Part of it. In the first Case, provided the Cataract, when couched, was full ripe, it falls down spontaneously; but, if only a Part of the Cataract was fluid, it adheres to the back Part of the Iris, and will not subside, without a second Operation.

Sometimes no Part of the Cataract rises up; but very often the Patients can see, at first, after the Operation; their Sight continues the same to the twelfth or fifteenth Day; afterwards it decreases, and the Patients complain they see Filaments, or Threads, pass before their Eyes. The Reason of this is, that in depressing the Cataract, it was separated either at the Middle, or at the Extremity, of the ciliary Fibres, on the Side they are joined to the Membrane of the Crystalline. As these Fibres are inserted in the great Circumference of the Iris, whence they have their Origin, and, uniting together behind the Hole of the Pupil, they present these Threads to the Patient's Sight, which is partly diminished by them; neither can he see, as well as he should, after the Couching; the Operator, not perceiving this, at first, thinks his Operation well performed, as it really is, with regard to him. In all these Cases, where any Part of the Cataract remains behind the Pupil, if the Sight be much weakened by it, a second Operation is necessary, in order to depress that Part. This second Operation is more dangerous and painful than the first; because the Pellicle, formed by the remaining Part of the Cataract, adheres to the back Part of the Iris, sometimes by two or three Filaments, which must be cut. This requires the greatest Dexterity; for these Insertions commonly bend, and give way to the Needle; so that as soon as the Needle is raised, the Pellicle springs up, and returns to its first Place. We are often obliged to push this Pellicle with the Needle, thro' the Hole of the Pupil, into the anterior Chamber, there to pierce it, and from thence bring it back into the posterior, still pushing it towards the great Angle. In short, the same Movements of the Needle must be observed, which were described, when we treated of that Species of Cataract which rises upon being depressed.

The fifth Accident, which follows the Operation of the Cataract, is incurable, because the Sight is lost. It proceeds from a Defluxion which falls on the Optic Nerve and the inner Membranes of the Eye; then the Parts grow dry and decay, as appears evidently from the Contraction of the Pupil, and from the Patient's not seeing the Light. *Saint-Yves*.

Sometimes a Cataract, which the *Greeks* call *Hypochysis*, *ὑποχυσις*, forms itself before the Pupil of the Eye, the Part by which it discerns Objects; which Disorder, when grown mature and inveterate, must be removed by manual Operation. Sometimes a Cataract, in its Beginning, as is evident from certain Observations, is discuss'd by medicinal Remedies, as by Bleeding in the Forehead or Nostrils, cauterizing the Veins in the Temples, Apophlegmatisms, Suffumigations, and anointing the Eyes with acrid Medicines. The most proper Diet for the Patient is such as attenuates Phlegm. *Celsus*, *Lib. 6. Cap. 6.*

I look upon this Advice of *Celsus* to be the more worthy of Notice, as few among the Moderns, except *Heister*, have paid so much Regard to it as it seems to deserve. It is not easy to conceive how the Humours of the Eye should be able to preserve their Transparency for many Years, as we find they do, unless they were, like other Parts of the Body, perpetually supplied with proper Juices from Vessels destin'd to their Service; and if this is the Case, the adventitious Opacity of the Crystalline, or any other Humour, must arise from some Defect in those Juices, or perhaps from the Vessels which should supply them being render'd impervious, or being turgid, and too much distended with Juices improper for affording the requisite Supply. In a recent Cataract, therefore, or where there is only a Tendency to one, whatever is capable of attenuating the Juices, of unloading the distended Vessels, and of deriving a Portion of their Juices to distant Parts of the Body, appears to be capable of doing considerable Service, however little they are to be depended on in a confirm'd Cataract. Reasoning, in Physic, is of some Importance, when supported by Experience, however little it is to be regarded without this Touchstone of Truth. The Experience of *Celsus* is greatly in favour of what I have said; and I think I can affirm from my own, that I have known Cataracts at least prevented, by Treatment not much unlike that which *Celsus* recommends.

A Disease, or a Blow, sometimes occasions a Concretion of the Humour under the two Coats of the Eye, at the Place where there is a Vacuity, which hardening by degrees, darkens,

by its Opposition, the interior Part by which Vision is exercised. There are several Kinds of this Disorder, some of which are curable; others incurable. If the Cataract be small, immovable, of the Colour of Sea-water, or bright Iron, and admits of some Sense of Light by its Sides, there are Hopes of a Cure. If it be great, if the Black of the Eye have alter'd its natural Figure, if the Colour of the Cataract be azure, or like that of Gold, if it slides, and is moveable from Side to Side, it is scarce ever known to be removed. It is generally of a bad Kind, when it proceeds from a severe Distemper, a great Pain of the Head, or a violent Blow. Aged Persons, who are naturally dim-sighted, without the Accession of a Disease, are improper Subjects for an Oculist, and so are Children; but the Time of Life between Childhood and old Age is a proper Season for undertaking the Operation. A small Eye too, or a hollow one, do not favour the Performance of this Work. Some Maturity also is requir'd in the Cataract itself; for which Reason we must wait till it seems to be past its State of Fluidity, and grown to a sort of hard Concretion.

For three Days before the Operation, the Patient is to live on slender Diet, and to drink Water, and the Day before it absolutely to fast. After this, he is to be seated in a lightsome Room, against the Light, in a Chair opposite to the Surgeon, who must sit a little higher. Behind must stand an Assistant, to hold the Head of the Patient, and keep it immovable, for a slight Motion might occasion a perpetual Loss of Sight; and to render the diseased Eye also the more immovable, the other is to be secur'd from Motion, by binding Wool upon it. The Operation on the Left Eye is to be performed with the Right Hand; on the Right Eye with the Left Hand. Then the Needle, which ought to be sharp, and not too slender, must be introduced, and directed, in a strait Line, thro' the two outer Coats, in the middle Distance between the Black of the Eye and the Corner next the Temple, opposite to the Middle of the Cataract, in such a manner as not to hurt a Vein. And the Surgeon has no Cause to introduce his Instrument in a timorous manner, because it is receiv'd in a void Space, to which it is easy for him, however unexperienced, to know when he has penetrated, by his meeting with no farther Resistance. Having penetrated thus far, the Needle is to be inclined to the Cataract, and there gently to be turned, so as by degrees to depress it below the Region of the Pupil, where it must be compressed with some Force, that it may settle in these lower Parts; and if it there rests, the Cure is completed. If it returns once and again, it must be cut more with the Needle, and separated into more Parts, which are depressed single with more Ease, and are less incommodious by their Breadth. This done, the Needle is to be drawn out in a strait Line; and the White of an Egg in soft Wool is to be apply'd to the Place, with a Bandage, to check the Inflammation.

The Patient now requires Rest, Abstinence, Unctions with gentle Medicines, and Food, which last may be deferred till the next Day; and ought, at first, to be liquid, that the Jaws may not be exercised; but afterwards, when the Inflammation is at an End, such as is proper in the Cure of Wounds, with this necessary Caution, that the Patient is to drink nothing but Water for a considerable time. *Celsus*, *Lib. 7. Cap. 7. Tit. 14.*

As this useful Operation requires a very great Dexterity, and much Knowledge, it may not be amiss to give a farther Description of it from *Heister*.

As to the Cure of a Suffusion or Cataract, it may be attempted either by Medicines, or the Needle. Some, I know, reject the Treatment of a Cataract by Medicines, as vain and insignificant; and yet I cannot but recommend it to a young Physician, as a safe and effectual way, at least in some Cases: For we are well assured, that there have been Instances, not only in later Times, but near two thousand Years ago, of Persons afflicted with a Cataract, who either by the Benefit of Nature, or the Assistance of Medicines, have, contrary to all Expectation, been freed from that Disorder (see the Quotation above from *Celsus*). But by what Methods these Medicines are to be accommodated to the different Causes of the Disease, and the Age or Habit of the Patient, we leave to the Judgment of Physicians; our present Design, in this Work of Surgery, being to direct the Surgeon in the Cure of this Distemper by manual Operation with the Needle, and other Instruments.

But before we set about this Work, we cannot forbear seriously recommending to all Cultivators of the Art of Surgery the Study of that noble and incomparable Art of curing a Cataract by the Operation of the Hand, and persuading them to rescue it out of the Hands of Mountebanks and Strollers, who talk on all Occasions of the strange and almost insuperable Difficulties and Niceties attending this Operation, tho' we see it frequently perform'd with Success by skilful Surgeons, and sometimes even by the Strollers themselves. And, to speak the Truth, that noble Operation for the Cure of a Cataract is usually perform'd with far more Safety than opening a Vein, which yet is a thing practis'd by the very Barbers Apprentices: For in couching a Cataract there is very little Fear of pricking a Nerve, Tendon,

or

or any dangerous Artery, as it sometimes happens in Venesection; besides, in attempting Phlebotomy, oftentimes no Vein appears, especially in fat and corpulent Persons, where it is often very difficult to find a Vein, and make a right Incision therein; whereas, in the Operation for a Cataract, the Place where the Instrument is to be introduced, is always sufficiently manifest. However, lest any should think us of Opinion, that this Operation may be safely perform'd by the Hands of awkward and unexperienced Surgeons, Apprentices, and Mountebanks, it will not be amiss briefly here to enumerate the Qualifications which are requir'd in a Surgeon to make him a good Oculist. First of all, he must have a thorough Knowledge of the Structure of the Eye, from the Study of Anatomy, that he may not commit any Blunder, nor hurt any thing thro' Ignorance. Secondly, he must know exactly what ought to be done, and after what Method every thing belonging to the Operation may most fitly be performed; for which End nothing can be more advisable, than to be often present, as a curious Spectator, at the Performance of this Operation by skilful Surgeons. A third Qualification for an Oculist is an intrepid Mind joined with a ready, able, and steady Hand, which never tremble, and a clear and sharp Sight. Fourthly, he must be able to use his Left Hand as well as his Right, that he may be equally dexterous at couching the Right Eye with his Left Hand, as the Left Eye with the Right. And, lastly, he must have exercis'd himself in repeated Performances of this Nature on the Eyes of Animals and dead Men; before he ventures to practise upon living Persons.

For the more successful Performance of this Operation there are two Things principally to be regarded antecedent thereto. The first is to chuse the fittest Season, and not attempt it till after a due Preparation of the Patient. The most convenient time for the Operation is in temperate and moderately warm Weather, as it usually is in Spring and Autumn. In the second Place the Surgeon must be mindful to fix upon a remarkably clear and serene Day for the Performance. As to the Time of the Day, the Forenoon is usually chosen; not but that the Afternoon may be proper enough, and even sometimes preferable; as, for Instance, with respect to Patients of a pusillanimous Temper, who are not so subject to faint after a moderate Dinner, as when fasting; and we cannot be too careful in preventing an Accident which is most likely to be the Ruin and Disappointment of the Operation. The more lightsome the Room is, the more convenient it is for the Purpose, provided too great a Splendor of the Sun's Rays be avoided. For too strong a Light striking upon the Eye immediately causes the Pupil to contract, which prevents the Surgeon from accurately discerning the Needle, or whatever else may occur within the Eye. With respect to the Preparation of the Patient, he is not only to observe a careful Regimen in his Diet and Way of Living for some Days before the Operation, but ought, at the same time, to have his Body evacuated of noxious Humours by proper Cathartics, and to have the Redundance of his Blood diminished, by opening a Vein, lest a violent Inflammation, tormenting Pains, or perhaps the Suppuration and Destruction of the whole Eye, which has sometimes happen'd, should be the Consequences of the Operation. At the Approach of the Day appointed for the Performance, the Belly is to be evacuated by a Clyster, unless it be already in a soluble State, as it ought to be. And, lastly, to prevent fainting under the Operation, which may throw an insuperable Difficulty in the Way of the Surgeon, and be an Impediment of the most pernicious Consequence to the Work, it seems advisable, if the Time appointed be in the Forenoon, to let the Patient take some Food, or at least sup some strengthening Liquor, or Broth, before the Operation. But nothing is more effectual, either for preventing or removing any bad Symptoms after the Performance, than procuring to the Patient sound and agreeable Sleep by some anodyne Emulsion, which restores both Strength to the Body, and Tranquillity to the Mind; and prevents the depressed Cataract from easily rising again.

The Surgeon is never to undertake the Operation by himself, but is to use the Help of at least two Assistants, one of whom is to hold the Patient's Head, during the Operation, as is represented *Tab. 38. Fig. 1. A.* and the other is to stand in Readiness to reach the Needle, or whatever else is necessary for the right Performance of the Work. For this Purpose, and to come off with Success in the Undertaking, there is first and principally requir'd a good convenient Needle, which some use with the Help of what they call a *Speculum Oculi* (see *Tab. 38. Fig. 15. and 16.*).

There are great Varieties of those Instruments for the Eye, which they call couching Needles, which are accommodated for couching a Cataract. The Figures of those which are most in Use are represented *Tab. 38. Fig. 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11.* the best of which, in my Opinion, are those represented at 5, 6, and 10, which have all a Point somewhat broad and sharp, and not unlike a Tongue, or a Grain of Barley; and particularly that at 6, has its Point sulcated, and consequently is much better accommodated for couching the Cataract than

the others, which are furnish'd with thinner or narrower Points; or large, but blunt ones; for when they are too slender and sharp, as those are at *Fig. 2. and 4. A.* they easily tear the Cataract; and when they are too blunt, as is that at *Fig. 8.* they will not perforate the Eye without much Difficulty. It is no Wonder, therefore, that some Surgeons have advis'd the Use of two Needles in the same Operation, one sharp-pointed, (*Fig. 7. and 9.*) for perforating the Eye; and another with a broad blunt Point, (*Fig. 8.*) for depressing the Cataract after Perforation. But it is easier to write of the Uses of two Needles, than to accommodate them to Practice, without injuring the Eye. However this be, all possible Care is to be taken; that the Instruments be extremely well polish'd, by rubbing them upon a Piece of woolen Cloth or Leather, before they are apply'd to the Eye, lest, through some Rust or Roughness, they should not without Difficulty penetrate the Eye, or greatly hurt and lacerate it. *M. Freytag* very much recommends the Use of hooked Needles, by which membranaceous Cataracts may be extract'd out of the Eye; but if they are really instrumental to this Purpose, it is Pity he has not given us the Delineation of these Needles.

That no unnecessary Obstacle may retard the Surgeon in his Proceedings after the Operation, all things which may be of any Service towards the Dressing are very carefully to be provided beforehand. There must be in Readiness (1.) some refrigerating Collyrium, which may conveniently be prepared of the Water of Plantain, or Blue-bottle well beaten with the White of an Egg, to which some add a small Quantity of Alum, or prepared Tutty, or Saffron, or Camphire. Others use common Spirit of Wine for a Collyrium. *M. St. Yves* recommends before all a Liquor composed of ten Parts of lukewarm Water, and one of Spirit of Wine. (2.) There must be ready at hand a soft Compress of folded Linen, large enough for covering the whole Eye. And (3.) a Fillet, about three Yards long, and two Inches wide; or a Handkerchief, folded up in the Form of a Triangle, to bind up the Eyes of the Patient after the Operation. (5.) And, lastly, you must be provided with *Hungary Water*, Vinegar, or some other strengthening Medicine, to be apply'd to the Patient's Nostrils, if he should, as it sometimes happens, faint under, or soon after the Operation.

There now remains no more to do, before the Surgeon enters on his Work, but to fix and secure the Patient in the most convenient Posture. He must be placed, therefore, almost against the Light, in a Chair lower than ordinary, as is represented *Tab. 38. Fig. 1. E.* and opposite to the Surgeon *C.* who must sit in a Chair a little higher than the other *D.* If one of the Eyes be sound, or at least not quite blind, it must be cover'd and bound up with a Handkerchief, or broad Fillet, and render'd immoveable, lest the Patient, in moving it, should, at the same time, as it naturally happens, move the diseased Eye, and so expose it to be wounded by the Needle. For the same Reason you must be very careful to admonish the Patient, that, if he should recover his Sight on a sudden, in the very Operation, as it sometimes happens, he must make no Exclamation or Exultation of Joy; as Persons in such a Circumstance are subject to do, but to sit quiet and immoveable, as much as may be, because the least Motion may endanger the Loss of his Sight for ever. For the more commodious Performance of the Operation, the Patient is to be situated in his Chair, after such a manner as to fix his Hands upon the Knees, and his Legs between the Legs of the Operator; and sometimes the Legs of the Patient are elevated and firmly held by the Assistants, that he may not be able to rise before he is permitted. Behind his Back, as we observed, must stand an Assistant, who is to hold the Head of the Patient with the greatest Care and Address, his Left Hand placed on the Sinciput, or Top of the Head; and his Right Hand on the Chin, in order to fix it upon his own Breast, and render it quite immoveable; for the least Motion of the Head is attended with the Danger of perpetual Blindness, as we are assur'd by woful Experience.

All things being thus disposed in their proper Situation, the Patient must be order'd to open his Eyelids as wide as possible, and to turn his Eye inwards towards his Nose, that a pretty large Portion of the White of the Eye may appear at the lesser Canthus, or Corner of the Eye next the Temple. Then the Surgeon, with the fore Finger and Thumb of his Left Hand, supposing it to be the Left Eye, which is the Subject of his Operation, dexterously opens wide the Eyelids, (see *Fig. 1. and 14.*) and by that means renders the Eye at the same time fixed, and in a manner immoveable. Some recommend the *Speculum Oculi*, (*Fig. 15. or 16.*) or something like it, for this Purpose; but this Expedient, in my Opinion, is more likely to hinder than forward the Operation; however, if any one be accusom'd to the Use of it, or promises himself great Assistance from it, I am not against his using it. Next the Surgeon takes the Instrument, or Needle, handed to him by an Assistant, in his Right Hand, holding it betwixt his Thumb and fore and middle Fingers, in the same manner as we usually hold a Pen in writing (see *Tab. 38. Fig. 1. and 14.*). He then places the two hinder Fingers of the same Hand upon the Patient's

Check,

Check, by which means that Hand is secur'd from easily shaking, and render'd more firm and steady in its Work, than if it were free and unsupported. With this Precaution, the Operator now proceeds to enter the Needle into the White of the Eye, near the middle Distance between the Cornea Tunica, and the lesser Canthus, (See Fig. 14. A.) cautiously directing it in a straight Line, through the Coats directly opposite to the Middle of the Cataract, to avoid wounding the Blood-vessels.

As soon as the Needle has penetrated through the Coats into the Eye, which is known by its finding no more Resistance, it is immediately to be inclined towards the Cataract (see Tab. 38. Fig. 14. B.); and as soon as you have taken hold of the upper Part of the Cataract with the Needle, you must endeavour gently to depress it below the Region of the Pupil, whether it be a preternatural Membrane, or an Opacity of the crystalline Humour; for as yet we have no evident Marks, by which we can distinguish one Case from the other as to outward Appearance, except those with which we are furnish'd from the Observations of Mr. St. Yves. If the Cataract descends with the Needle, which it will sometimes do, when it is mature and hard, at the first Stroke, it will be convenient to keep it down for a while, in order to its Settlement below the Pupil; and if, upon elevating the Needle, it still rests in that Situation, your Operation is well performed, and the Needle is to be drawn out of the Eye in a straight Line as it enter'd. If the Cataract returns, or rises again, as it very often happens, you must depress it with the Needle a little more strongly, and keep it down a little longer till it settles below the Pupil. M. Freitage advises, in such a Case, the introducing of a hooked Needle, by which the Cataract, which is, according to him, generally a Pellicle, may be laid hold of and extracted, as he has frequently seen it done, he says, by his Father. But as we have no clear Description either of the Needle or Method of Extraction, and it is to be doubted, whether this Needle, in extracting the Pellicle, will not lacerate the Coats of the Eye, the Retina, Choroides, and Sclerotica, for I see not what should hinder it, I cannot as yet agree to his Advice.

When the Cataract adheres pretty strongly, it is often a difficult Task to disengage and depress it entire. When this, therefore, happens, it is to be divided with the Needle, and each of the divided Parts afterwards is carefully to be depressed with the same Instrument. The Method of Operation is the same, when, during our Attempts to depress a Cataract, it either spontaneously, or by some Cause, breaks, and is divided into Pieces; for that the Sight has sometimes been restor'd by this means, has long ago been observ'd by those skilful Authors Celsus, Guillemeau, Paré, Barbet, Brisseau, and others; and I myself have twice had an Opportunity of observing the same Thing. If the Cataract adheres so firmly to the Tunica Uvea, as that it can hardly be separated therefrom, it is proper to make a Perforation in the Middle of the Cataract; for thus the Rays may pass thro' it to the Bottom of the Eye, and a certain Degree of Sight is, by this means, sometimes restored to the Patient. In a Case of this Nature, the Success is in all Probability greatest, when the crystalline Humour is pretty thin; for some time ago I found it, in a certain Subject, so diminish'd in Thickness, as scarce to exceed that of one's Nail, and at the same time it adher'd strongly to the Tunica Uvea. But in Cases where the Cataract is as yet found too soft, Brisseau thinks it more advisable to withdraw the Needle, and defer the Operation for some time, till the Cataract is become sufficiently ripe, than, by performing upon an unripe Cataract, to frustrate the End of the Operation, and for ever deprive the Patient of his Sight. When the Right Eye is blind in consequence of a Cataract, the Surgeon must follow the same Method of Operation, but in such a manner, as to hold the Eye in his Right, and the Needle in his Left Hand; after which, he is to apply the Needle, and couch the Cataract in the manner already directed; for, in the great Canthus, the Needle cannot be commodiously apply'd to the Right Eye, with the Right Hand, by reason of the Contiguity of the Nose. I had a Needle presented me by a Friend, with which he pretends the Operation may be perform'd by the Right Hand on the Right Eye, in the large Canthus, when the Surgeon is not very dextrous with his Left Hand. This Needle, on account of its Novelty, I have exhibited in Plate 38. Fig. 17. in which A. represents the Needle itself, B. the Handle, and C. the particular Degree of Inflection, necessary to accommodate it to the Nose. When a sufficiently ripe Cataract is found in both Eyes, after performing the Operation on the one, and applying proper Dressings, we may immediately proceed to treat the other in the same manner. But when the Operation on the one has been long protracted, we are not to make any Attempt on the other, till some time after, when the Symptoms excited by the former Operation are gone off, lest the Patient shall be too violently tormented, or fall into a Delirium.

Having already directed in what manner the Operation is to be performed, we shall now give a succinct Account of what

is to be done after it. It is customary with the common Oculists and Quacks, after withdrawing the Instrument from the Eye, to hold before the Patient two of their Fingers extended, or a Glass full of Water, red Wine, or Ale, asking them what kind of Object they see, and what particular Colour it is of. When they give pertinent Answers to the Questions ask'd, and are able quickly to distinguish one Object from another, it is concluded, that the Operation is successfully and happily performed; tho' this Trial seems not only improper, but also prejudicial to skilful Surgeons, since by it the weak and disorder'd Eye is too much exercis'd, by which means the Cataract, now depressed, is easily driven upwards again. It, therefore, seems more advisable, immediately after the Operation, to apply a Compress, dipt in some of the Collyriums already directed, to the Eye on which the Operation has been perform'd, and to secure it with a proper Bandage or Fillet, lest the Rays of the Light should act too forcibly on the Retina. But in this Case both Eyes must be secur'd with the Bandage, tho' the Operation has only been performed on one of them, lest, by the Motions of the sound Eye, the other should, at the same time, be agitated or incommoded: For when this happens, there is a Danger, lest the Cataract should either be elevated and return again, or that greater Inflammation, or some other unlucky Symptom, should be brought on.

Having duly applied the Dressings, the next Thing to be done, is to lay the Patient upon a Bed, in the most proper and commodious Posture. He must therefore be laid upon his Back, and have his Head supported and kept erect by Pillows: He must also remain in a State of profound Rest for eight Days, and abstain from Food of hard Digestion, from talking loud, from sneezing, from violent coughing and laughing, till the Cataract is observ'd to be securely lodg'd in the inferior Part of the Eye. For if the Patient should indulge himself in any of these, 'tis to be dreaded, lest, by the unreasonable Commotions of the Head, the Cataract should again break forth, and be elevated. 'Tis also to be observ'd, that no Surgeon, however skilful and sagacious, can certainly affirm, that a Cataract, when depressed, will remain in that State; yet, still the miserable Patients have this Comfort, that if it should ascend, there are some Hopes left, that it may again be depressed by another Operation, and that their Sight may by that means be restor'd. Thus the celebrated Antony Maitre-Jean, in his Book *de Morbis Oculorum, Cap. de Cataracta*, informs us of a Man, who having the Operation perform'd in the Autumn, his Cataract return'd, but was happily and effectually depressed next Spring by a second Operation. The same Author informs us, that there are Instances of Patients, in whom the Cataract has again been elevated after a previous Suppression, but that they have soon after perceiv'd it to subside and fall down of its own accord; and I myself remember to have once seen an Instance of this kind. But Freitage, if we may give Credit to him, in his *Dissert. de Cataracta*, affirms, that his Father extracted them by means of a hooked Needle.

Some Hours after the Operation, Venesection is highly proper, lest a violent Inflammation should seize the affected Eye. Upon this Occasion, as much Blood must be taken away as the Strength and Constitution of the Patient will admit of. For this Reason, lest the Patient should suffer by a Discharge of too much Blood at one time, or by the Inflammation, 'tis necessary, as in other violent Inflammations, to repeat Venesection at different times. The Collyriums above recommended, and the internal Medicines prescribed in Cases of this Nature, by skilful Physicians, are not in the mean time to be neglected. I have frequently observed a Vomiting to seize the Patient an Hour or two, and sometimes next Night, after this Operation is performed. Freitage also, in his *Dissertatio de Cataracta*, informs us, that he had an Opportunity of observing the same Symptom in a certain Patient. This Symptom is, in my Opinion, to be accounted for from a certain Irritation of the Nerves; but, for the most part, it soon ceases of its own Accord. 'Tis surprising, that this Phenomenon should be adverted to by so few, since 'tis generally a bad Prognostic; for by the Efforts made in Vomiting, the depressed Cataract generally rises again. Towards the Evening of that Day, on which the Operation is performed, 'tis customary to exhibit a narcotic Emulsion, that the Patient may have as sound a Repose as possible; for when he is awake, it is greatly to be dreaded, lest, as it generally happens, the Cataract should again rise, by the restless and uneasy Tossing of the Body from one Position to another. The Food and Regimen ought to be entirely the same, as are directed in other severe Wounds and Inflammations; for, in these Cases, considerable Inflammations are generally accompanied with the highest Danger. If the Patient is cosive, an emollient Clyster is proper, in order to evacuate the excrementitious Matter which incommodes the Patient, without depressing the Spirits, or exciting violent and unnatural Efforts. Nor is the Patient to be suffered to get out of Bed, in order to ease Nature, for some Days after the Operation; but he is to have a Vessel

adapted to this Purpose; for the less the Head is allowed to remain in a State of Rest, the greater is the Danger, lest the Cataract should rise and spring up again.

As to the Method of Dressing, the following Directions are to be observ'd. Towards the Evening of the Day, on which the Operation is perform'd, the Bandage is to be loos'd as gently as is possible, and a fresh Compress, dipt in the above-mentioned Collyrium, to be laid on and secur'd with a Bandage, apply'd in the manner already directed. On the subsequent Days, the Dressings ought to be renew'd twice a Day at least, that is, at Morning and Evening. The Dressings may also be chang'd three or four times a Day, when the Heat is very intense, because in that Case the Compresses generally become soon dry. Upon every Removal of the Dressings, two Things are principally necessary to be observ'd. The Surgeon must not only carefully examine whether any remarkable Inflammation appears, but he must also take care, that too strong a Light is not suffer'd to strike on the affected Eye, lest, by that means, it should be considerably injur'd. If the Eye is in a good State, or if only a slight Inflammation appears, the same Method of Dressing is to be continued for eight Days; for, in these Cases, an Inflammation does not generally happen after the eighth Day, at which Time 'tis proper to remove the Bandage, and allow the Patient a faint Degree of Light, provided the Curtains of the Bed are drawn, and the Eye defended by a Piece of black or green Silk hanging before it. If every Thing is in a right State, the Patient may, after the tenth Day, safely venture gradually to get out of Bed, and walk up and down in his Chamber, provided the above-mentioned Piece of Silk be kept before the Eye, and the Window-curtains are drawn. If, after this, Things proceed happily, the Cure will be soon completed, and the Patient may be gradually accustomed to his former Method of Life: But if any other troublesome Symptoms occur, the Patient is to be kept in a State of Rest till they are remov'd.

But that the Surgeon may, with the greater Skill and Judgment, remove the Accidents sometimes subsequent to this Operation, we shall here particularly consider those which most generally occur. First, then, when during the Operation any Quantity of Blood is discharged in the Eye, and renders the aqueous Humour turbid and cloudy, the Operation is to be perform'd with all possible Expedition, lest there should be a greater Discharge; and the above-mentioned Collyrium is carefully to be apply'd, since, by this, expert Surgeons have observ'd slight Perturbations of the aqueous Humour to be digested and remov'd. But the Danger is far greater, when a large Quantity of the discharged Blood is mix'd with the aqueous Humour; since, in this Case, 'tis scarce possible, but that a Hypopium [which is a Collection of Pus under the Tunica Cornea] or some other Disorder, must induce a perpetual Blindness. In this deplorable Case, however, 'tis proper, that a large Quantity of Blood should be taken from the Patient, and Bags prepared of Sage, Rosemary, Hyssop, and Fennel, boil'd in Wine, frequently apply'd warm to the affected Eye; for these are of singular Service, except in Cases where the Disorder is entirely desperate. Secondly, when, during the Operation, the aqueous Humor itself is discharg'd, in consequence of which, the Tunica Cornea collapses, we have no great Occasion to be in Pain with respect to the Recovery of the Eye, since, in a few Days, the Humour is generally restor'd, and the Eye returns to its natural Form. Thirdly, when, after the Operation, any Inflammation appears, nothing is to be omitted which can contribute to remove it. If it should happen to be only slight and gentle, the Medicines above recommended will prove sufficient for suppressing it: But if it should happen to be pretty violent, besides these Medicines, 'tis necessary the Patient should drink Water, and, at proper Intervals, have Blood taken either from his Arm, Foot, or Neck. His Temples must also be very frequently anointed with camphorated Spirit of Wine; Clysters also, and Vesicatories, together with the internal Medicines prescrib'd against Inflammations, are to be carefully and judiciously exhibited.

From what has been said I think it sufficiently obvious, that my Doctrine, which fixes the most general Seat of the Cataract in the Crystalline Humour, is of the most extensive Use, not only with respect to the Diagnostics, Prognostics, and Cure, but also with respect to the proper Construction and Application of the Instruments adapted to couch the Cataract; for as soon as it was observ'd, that a Cataract was almost always owing to an Opacity of the crystalline Humour, and very rarely to the Formation of a preternatural Tunic, *Brissau* accurately judg'd, that those Needles were by far the most proper for depressing them, whose Points are somewhat broad and corner'd, like that represented in *Tab. 38. by Fig. 6. Letter C.* For by using the small Needles of the ancient Surgeons, whether made of Gold, Silver, Steel, or Iron, it is scarce possible, but that the deprav'd crystalline Humour, or any other noxious Matter, must, during our Attempts to depress them, be lacerated or cut. *Brissau's* lately invented Needle, *Fig. 6.* is not only broad and corner'd, but also sharp and acuminate, that

it may the more readily penetrate into the Eye. The Handle A. B. is an Octagon, one of whose Sides, represented by E. E. is mark'd with Lines, or in some other manner, with a View to know the corner'd Part of the Needle from the other during the Operation; for by this means we may almost infallibly determine, whether the flat or sharp Part of the Instruments, apply'd to the Eye, touches the Cataract. The Protuberance D. is added to this Instrument, principally to discover, with Ease and Accuracy, how far the Instrument has penetrated into the Eye.

Some Surgeons, thinking the principal Cause of a Cataract to be a certain preternatural Coat growing in the Eye, have chiefly us'd such Instruments as they judg'd proper for the total Extraction of this membranous Cataract thro' the Wound made with the Needle, lest, as it often happens, the Disease, when once cured, should again return. The first kind of Instruments, therefore, they us'd, were small Pipes, or perforated Needles, which they apply'd to the Eye, and by their means endeavour'd to suck out the preternatural and foreign Coat. To the second kind belongs the particular Needle, ingeniously form'd like a slender kind of Forceps, and delineated in *Tab. 2. Fig. 28. 29. 30.* of which see the Explication, under the Article *Acus*. To the third kind belong the hooked Needles of *Freitage*, and the slender Hooks which they pass'd thro' a small Pipe, introduc'd into the Wound of the Eye, in order to seize and extract the preternatural Coat. But that Attempts of this kind are vain and useless, tho' the Instruments should be never so artfully made, is confirm'd, not only by our having shewn the Fallshood of that Opinion, which places the ordinary Cause of a Cataract in the Production of a preternatural Coat in the Eye, but also by the concurring Testimonies of the most skilful Surgeons, who unanimously declare, that the Operations perform'd in these manners are never crown'd with Success. Unless *Freitage* had more accurately describ'd his Method, delineated his Needles, and shewn how the Laceration of the Eye was to be prevented, I cannot help thinking, that he wrote rather to indulge a wanton Genius, than to support an important Truth.

It is here also to be observ'd, that when the Cataract, as it frequently happens, falls thro' the Pupil itself, it is proper cautiously to make an Incision in the inferior Part of the Tunica Cornea; and warily introducing a small Hook, or proper Probe, to extract the Cataract, which is ready, as it were, to fall on the Cornea.

Taylor, in the eleventh Chapter of his Treatise of the Cataract and Glaucoma, has describ'd a new Method of couching the Cataract by the Needle, which is as follows. He places the Patient in the usual manner, secures the affected Eye with a *Speculum Oculi*, and afterwards with a Knife, Bistoury, or Lancet, makes a small longitudinal Incision thro' the Membranes of the Eye to the vitreous Humour, about half a Line below the ordinary Place. Then he directly passes a slender plano-convex Needle into the Eye thro' the Incision, with the convex Part of it turn'd upwards to the inferior Part of the crystalline Humour. After this, he gently elevates the Point of the Needle a little, till he perceives a faint Resistance from the crystalline Humour lying above it, and observes its Motion thro' the Pupil. When, from these Signs, he knows, that the Apex of the Needle is immediately under the Capsula of the crystalline Humour, he thrusts it downwards to the Bottom, in order to divide the vitreous Humour, and prepare a Space for the Reception of the crystalline Humour, which is afterwards to be depress'd: After this, he withdraws about two Lines of the Needle, and introduces it into the inferior Part of the Coat of the crystalline Humour, the Situation of which he carefully observes. This Part of the Coat, he says, he divides or opens with the Needle, without hurting the ciliary Ligament; that thro' this Aperture, or Division of the Coat, the crystalline Humour may be afterwards depress'd. By this Motion or Action of the Needle, as he informs us, he endeavours, at the same time, to enlarge the Space intended for the Reception of the crystalline Humour: Then, in order to couch and suppress the opaque crystalline Humour itself, he withdraws about three Lines of the Needle, that the crystalline Humour, now disengag'd from its Coat, may, as it were, spontaneously fall thro' the Aperture made below, into the Space before prepar'd for it. Then he elevates the Point of the Needle, and carefully directs it to the superior Part of the crystalline Humour, which he cautiously lays hold of, and depresses to the Bottom or inferior Part of the Eye, where the Space for its Reception was before prepar'd: Then he withdraws the Needle as gently as he can. He asserts, that by this means the Tunica Uvea, and Ciliary Ligament, are not injur'd, but remain in their natural State. This is certainly a Circumstance of great Importance, since, in the common Method of Operation, this Ligament is always lacerated. Tho' the Author's own Account of this Operation is more full and particular, yet I think I have selected the most material and important Circumstances, which ought to be carefully adverted to, and cautiously imitated by every skilful Oculist: But there

there are others so superfluous and minute, as hardly to be understood by most; and they can never be accurately observed, in the Operation, even by the Author himself. To this it is, perhaps, owing, that the most terrible Symptoms, severe Pains, violent Inflammations, and Abscesses of the Eyes, without a Restitution of Sight, follow his Operations for the Cataract. But the Advantages and Disadvantages of this Method must, like other Things of the same Nature, be determin'd by Time and Experience. *The younger Heister publish'd the Case of a Person of Amsterdam, who was couch'd by Taylor, with remarkably ill Success. I have not the Book, so can give no farther Account of it.*

How to couch the shaking Cataract, or the crystalline Humour become opaque, and fluctuating behind the Pupil, which requires another Method of Operation, he informs us, in two distinct Chapters, the Sum of which is nearly as follows. He introduces his Needle into the Eye of the Patient, in the manner already describ'd. Then he directs the Point to the anterior and superior Part of the vitiated crystalline Humour, which, taking care, at the same time, not to hurt the Ciliary Ligament, he lays hold of with the plain Surface of the Needle, and depresses to the Bottom of the vitreous Humour.

In some Species of Cataracts, which he calls *false*, he maintains, that not only the crystalline Humour itself, but also its Coat, is become opaque and vitiated; and, after having depress'd the opaque crystalline Humour itself, he shews us, at great Length, in two Chapters, how he separates its Coat from the Ciliary Ligament, and depresses it. In two other Chapters he gives us an Account of the Operation for the *Glaucoma*, to which Word he affixes a new and uncommon Idea, meaning by it such an Opacity, and Increase of the crystalline Humour, as that it reaches, together with its vitiated Coat, near the Edges of the Pupil. In this Case, he informs us, that the Cure is to be attempted almost in the Manner now directed. But, since the Antients distinguish'd a *Glaucoma* from a Cataract by its deep Situation in the Eye, and its being pretty far removed from the Pupil, Mr. Taylor's Signification of the Word is by no means to be embraced, since we cannot properly affix new Ideas to ancient Words. I am rather inclin'd to think, that what he calls *Glaucomas* ought, on account of their Vicinity to the Pupil, to be class'd among the Species of Cataracts.

We must here also observe, that Cataracts, which have spontaneously pass'd the Pupil, may sometimes be extract'd thro' an Incision made in the Tunica Cornea. But I am inform'd, by a Correspondent in *England*, that Taylor there boasted, that he could extract Cataracts, as yet lodged behind the *Tunica Uvea*, thro' an Incision made in the *Tunica Cornea*. But whether, in reality, he is capable of doing so, I have not, as yet, got certain Information. *Heister.*

I shall conclude the Accounts of this curious Operation, with what Mr. Sharp lays upon the Subject.

Having placed your Patient in a convenient Light, and in a Chair suitable to the Height of that you yourself sit on, let a Pillow or two be placed behind his Back, in such a manner, that, the Body bending forward, the Head may approach near to you: Then, inclining the Head a little backward upon the Breast of your Assistant, and covering the other Eye, so as to prevent its Rolling, let the Assistant lift up the superior Eyelid, and yourself depress a little the inferior one: This done, strike the Needle thro' the Tunica Conjunctiva, something less than one Tenth of an Inch from the Cornea, even with the Middle of the Pupil, into the posterior Chamber, and gently endeavour to depress the Cataract with the flat Surface of it. If, after it is dislodg'd, it rises again, though not with much Elasticity, it must, again and again, be push'd down: If it is membranous, after the Discharge of the Fluid, the Pellicule must be more broken and depress'd: If it is uniformly fluid, or exceedingly elastic, we must not continue to endanger a terrible Inflammation by a vain Attempt to succeed. If a Cataract of the Right Eye is to be couch'd, and the Surgeon cannot use his Left Hand so dexterously as his Right, he may place himself behind the Patient, and use his Right Hand.

I have not recommended the Speculum Oculi, (which we cannot however well do without, unless the Patient resolutely determines to hold the Eye still) because, upon the Discharge of the aqueous Humour thro' the Puncture, the Eye, being somewhat empty'd, more readily admits of the Depression of the crystalline Humour, than when press'd upon by the Instrument.

As to the Method of treating the succeeding Inflammation, (when it happens, for sometimes there is none) I can advise nothing particular, but to refrain from those Collyria that are charged with Powders; for the thinner Parts, flying off, leave a gritty Substance in the Eye, which must be pernicious. Bleeding, and other gentle Evacuations, are found absolutely necessary. The Use of cool Applications, externally, is most easy to the Eye; but, after all, there will sometimes ensue a troublesome Ophthalmia, which, with the Uncertainty there always is of Success, after the Operation, have deterr'd most Surgeons from undertaking it, and, till lately, from studying

the Nature of the Disease. But, I fancy, the Operation will come into greater Repute, when more generally practis'd by Men of good Character; for it is less the Difficulty, than the Abuse of it by Pretenders, has brought it into Discredit. *Sharp.*

I must apprise the Reader, that the Needles for the couching a Cataract, are, by Mistake, represented twice; once in *Tab. 2.* and again in *Tab. 38.* See the Explication of these under the Article *Acus.*

CATARIA.

The Characters are;

It shoots up one single Stalk, running into many Branches on both Sides. The Galea, or Crest, of the Flower is erect, roundish, bifid; the Beard, or Lip, divided into three Segments, the middle one excavated, large, and elegantly crenated on the Edges; the other two Segments, like Wings, inclining the wide Orifice of the Lips.

1. *Nepeta, Mentha Cataria*, Offic. *Nepeta major vulgaris*, COMMON GARDEN-NEP, Park. Theat. 38. Raii Synop. 3. 237. *Nepeta*, Riv. Irr. Mon. Dill. Cat. Gill. 126. Buxb. 233. Rupp. Flor. Jen. 191. *Mentha Cattaria*, J. B. 3. 225. THE GREATER OR MOST COMMON NEP, OR CATMINT, Raii Hist. 1. 548. *Mentha Cattaria sive Nepeta*, Chab. 415. *Mentha Cattaria vulgaris & major*, C. B. Pin. 228. Hist. Oxon. 3. 414. *Mentha felina sive Cattaria*, Ger. 554. NEP OF CATMINT, Emac. 682. Mer. Pin. 77. *Mentha felina, vel Cattaria*, Merc. Bot. 1. 50. Phyt. Brit. 74. *Cattaria major vulgaris*, Tourn. Inst. 202. Elem. Bot. 171. Boerh. Ind. A. 174. NEP. Dale.

Catmint has tall square hoary Stalks, pretty much branch'd, having, at the Joints, two pretty large softish Leaves, in Shape like those of Dead-nettle, whitish and hoary underneath, and green above, set on long Foot-stalks. The Flowers grow on the Tops of the Branches, in long handsome whorl'd Spikes of white Flowers, galeated and labiated; the Galea is cut into two, and the Labella into three Sections; they are set in open five-corner'd Calyces, in which grow the Seed. The Root is white and woody, and spreads much. It grows in Lanes and Hedges, and flowers in the Summer Months. It has a strong Scent, between Mint and Pennyroyal. It is call'd *Catmint*, because the Cats are very fond of it, especially when a little flaccid and wither'd; for, then, they will roll themselves on it, and chew it in their Mouths, with great Pleasure. It consists of warming and attenuating Parts, somewhat like Pennyroyal, and, like that, is of great Service in opening Obstructions of the Womb, and helping the Green-sickness; as also Hysterical Fits, and Vapours. It promotes the Birth and Lochia; and, by some Authors, is commended against Barrenness. *Miller's Bot. Off.*

Catmint is aromatic, acrid, bitter, and gives no Tincture of Red to blue Paper; which shews it to contain an aromatic oily volatile Salt, in which the urinous Part predominates, in the same manner as in the artificial oily volatile Salt. This Plant, taken as Tea, or infused in Wine, is very aperitive, emmenagogic, and cures the Vapours. *Tabernaemontanus* says, that, being boil'd in Wine and Honey, it cures the Jaundice, and a violent Cough. It is usually employ'd in Washes for the Feet, for the Green-sickness. *Martyn's Tournefort.*

Boerhaave takes Notice of seven more Species of the *Cattaria*.

2. *Cattaria*; quæ *Nepeta*; minor; folio *Melissæ Turcicæ*. H. C. b.

3. *Cattaria*; angustifolia; major. T. 202.

4. *Cattaria*; angustifolia; major; flore cæruleo-purpureascente.

5. *Cattaria*; Lusitanica; erecta; folio *Betonicæ*; tuberosâ radice. T. 202.

6. *Cattaria*; Lusitanica; erecta; folio *Betonicæ*; tuberosâ radice; flore albo. Ind. 70. b. H.

7. *Cattaria*; quod *Horminum*; spicatum; flore & odore *Lavendulæ*. Bocc. Rar. 39. Vaill. b.

8. *Cattaria minor*; vulgaris. T. 202. *Boerhaave's Index alter Plantarum.*

CATARRHÆCTICUS, κατάρρηκτικός, derived from καταρρηκτω, to break, is an Epithet apply'd, by *Hippocrates*, to Substances of a penetrating and dissolving Nature; as, for Instance, to Wine of fine Parts, because it has a diuretic Quality; to Oxy-mel, and the Peplum. *Hippoc. de Ratione Viæ in Acutis.*

CATARRHÆUMA, κατάρρημα, derived from καταρρηναι, to flow, is the same as CATARRHUS, a Defluxion.

CATARRHÆXIS, κατάρρηξις, from καταρρηκτω, to break, is a violent and copious Eruption or Effusion. Thus κοιλίης κατάρρηξις, in *Coac.* is a plentiful and urgent Evacuation, or Flux of the Belly, which, in *Epid. Lib. 4. Aigr. 25.* is call'd simply κατάρρηξις. The Verb κατάρρηκτω, is often used by *Hippocrates* in the same Sense, when he speaks of the Belly, and sometimes to express the Rupture and Effusion of Tumors. The same Verb, when spoken of the more humid and lax Parts of the Body, as the Veins and Breasts, signifies to sink, subside, or become flaccid; as, in *Lib. πειρῶσ. πῶσις*, where he says,

say,

ἄλλοι, διὰ τὴν μαζὴν καὶ τὰ ἄλλα μέλη ὁλοσὶν ὀγκύνεσθαι καταρρίνουσιν ἡ γυναικῶν. "The Breasts of Women, with their other more humid Parts, sink and become flaccid," spoken of the State of Women after their Child-bed Purgations.

CATARRHOECUS, καταρροικός, from ῥέω, to flow, in *Hippocr. Aph. 24. Lib. 5.* signifies *exciting Distillations*; and is there apply'd to cold Substances, as Ice and Snow. It is also used passively, and apply'd to Diseases proceeding from Distillations.

CATARRHOPIA, καταρροπία, from ῥοπή, an Inclination, of ῥέω, to incline, to tend, signifies a Propensity or Inclination downwards; as ANARRHOPIA, on the contrary, imports a Tendency upwards; and both these Words are used by *Hippocrates* in the Beginning of his Book of *Humours*.

Catarrhopa Phymata, καταρροπα φύματα, *Epid. Lib. 6. Sect. 1. Aph. 12.* "Tubercles tending downwards," are explain'd by *Galen*, in his Comment on the Place, to be ὅσα καὶ τὴν κάτω ᾤοντο τὴν κορυφὴν ἐκείνων ἔχει τὴν ἐμπύκνυν. "Such as have the Apex or Top of their Suppuration depre's'd," in Opposition to τὰ ὑπερῶς καὶ ὀξυρῶς, "those with a sharp and elevated Top," in the same Aphorism.

Catarrhopos Splen, καταρροπος σπλῆν, according to *Galen's* Explication, is a Spleen verging downwards, with a Declivity, *Epid. Lib. 6. Sect. 2. Aph. 30.* and its lower Part bloated, or which has a Propensity downwards, or propels the Humours to the inferior Parts.

Καταρροπία καὶ ἐν τῇ, in *Lib. περὶ χυμῶν*, is a Remission or Decline of a Disease, and opposed to παραξυσμός, the Paroxysm or Fit.

CATARRHUS, καταρροή, καταρρής, κάταρρῶ, from ῥέω, to flow, in *Aphorism. 38. Lib. 7.* implies a Distillation or Defluxion from the Head upon the Mouth and Aspera Arteria, and thro' them upon the Lungs. So *Galen, Com. 2. in Prog.* says, that καταρρής is a Defluxion of a thin and crude Humour, from the Brain, upon the Mouth and Palate; and is comprehended by *Hippocrates* under a κίριζα, *Coryza*. And, in his Comment on *Aph. 12. Lib. 3.* he says, that κάταρρῶς was a common Name, among Physicians, for Distillations from the Head, thro' the Aspera Arteria, upon the Lungs. Sometimes καταρρής signifies any Defluxion from the Head, by the Veins, upon the inferior Parts, as in the last-mention'd Aphorism. Defluxions of this Kind, after the fiftieth Year, and a sudden Exposing of the Head to the Sun's Rays, or taking a great Cold, produce an Apoplexy, or Palsy in some Part of the Body, according to *Hippocr. de Aere, Locis, & Quibus*; and these are the κάταρροι συντόμως ἀπώλλυντες, "the Defluxions which soon kill the Patient," mention'd in that Aphorism; or which, according to the Book before quoted, produce sudden Death, or a Resolution of the Right Side. *Celsus, Lib. 2. Cap. 1.* renders κάταρροι *Distillationes*; and *Caelius Aurelianus, Tard. Pass. Lib. 2. Cap. 7.* calls καταρροή *Influxio*. *Hippocrates* also, in *Conc.* speaks of a καταρρής ὀφθαλμοῦ, "a Defluxion on the Spinal Marrow;" and καταρρῶσι ἐκίγματο ὀφθαλμοί, *Lib. 2. Epid.* are Eyes affected with pituitous Defluxions.

The frontal Sinuses, the large Cavities in the superior Jaw, call'd the Antra Highmoriana, all the Cells of the Os Sphenoides, and the Nostrils, are lin'd with a thick soft Membrane, furnish'd with an almost infinite Number of arterial Vessels, round glandular Bodies, and excretory Vessels, which are continually pouring out a thin Lymph. The Fauces and Mouth are full of Glands, and their excretory Ducts: The Aspera Arteria also, and its various Ramifications, are lined with a Membrane containing Glands, whose excretory Ducts open into their Cavities. When too large a Quantity of serous Humours are discharg'd from all or any of these, the Disorder hence arising is term'd a Catarrh, or, as it is more usually call'd, a Cold. It is attended with a Fever, as it almost always is in some Degree, it is call'd a catarrhus Fever.

The Ancients, unacquainted with the glandulous Structure of the Parts subject to a Catarrh, apprehended, as is observed above, that the Humours flow'd from the Head upon these Parts. The Moderns have sometimes preserved the Term *Defluxion*, tho' they have discover'd the Error from whence it acqui'd this Appellation.

The Catarrhus suffocativus is a violent and suffocating Cough, either excited by an excessive Catarrh, by the Rupture of a Vomica in the Lungs, by a Polypus driven from the Heart into the Pulmonary Artery, and sometimes a spasmodic Constriction of the Nerves, as it happens in some Hysterical Cases.

Pertinent to this are the following Remarks of *Hoffman*.

Tho' a convulsive Asthma, and a *Catarrhus suffocativus*, bear a near Resemblance to each other in several respects, yet they are different in others; for this latter Disorder is a Species of Palsy, affecting the Pairs of Nerves subservient to Respiration, attacks the Patient unexpectedly, and is accompanied with a great Uneasiness, Stertor, and rattling Noise in Respiration; the Countenance is red and tumid, and the Patient is in Danger of being suffocated. But a convulsive Asthma is more periodical, and of a chronical Nature; whereas the Catarrhus suffocativus is justly rank'd among acute Disorders.

In it there is also a perpetual Afflux of Matter perceived by the Patient, a Symptom which does not accompany the Asthma. It is also accompanied with a greater Loss of Strength than a convulsive Asthma. But the Catarrhus suffocativus is principally incident to old Persons, Patients of weak Constitutions, and sometimes to Children; especially when exanthematous Eruptions, Small-pox, Measles, scald Heads, Achors of the Face, Itches, and other Disorders of this Kind, have been unskillfully driven back to the internal Parts. *Hoffman*.

A Palsy of the Nerves, subservient to Respiration, and which are distributed to the Bronchia, intercepts the Breath, and induces what we call a Catarrhus suffocativus. *Ibid.*

Polypous Concretions in the Pulmonary Vessels often prove the Causes of a violent and fatal Spitting of Blood, of a Catarrhus suffocativus, of a convulsive Asthma, and of a Dropsy of the Thorax. *Ibid.*

In Subjects who have died of an Asthma, and *Catarrhus suffocativus*, polypous Concretions are generally found in the Vessels more immediately communicating with the Heart and Lungs. This is confirm'd by the Observations of several Authors of Credit. Thus *Greiseli*, in *Misc. Nat. Curios. An. 1720. Obs. 74.* tells us, that, in all the Patients he had dissected, who died of a Catarrhus suffocativus, which often cuts the Patient suddenly off, he found callous glutinous and viscid Bodies in the Heart. *Ibid.*

Of a Catarrhus Fever.

Among the lymphatic and serous Fevers, that generally distinguish'd by the Epithet *Catarrhus* is one, in which, by an increased Motion of the Solids and Fluids, the Serum, become superfluous and impure in consequence of an obstructed Perspiration, is evacuated, as it were, in a critical and salutary manner; especially thro' the glandulous Organs of the Fauces, Nostrils, and Bronchia.

This Disorder generally seizes the Patient towards the Evening, and begins with a chilling Coldness of the Skin, a Refrigeration of the Extremities, especially of the Feet and their Soles, a Costiveness, a Stimulus to discharge the Urine, which is nevertheless evacuated in a small Quantity, a Weakness of the Head, a Languor of the whole Body, an increased, but, as it were, a false Appetite, a Thirst, a Difficulty of Deglutition, a Stimulus in the Larynx, and a Heat of the Nostrils and Fauces. These Symptoms are succeeded by a Sneezing, a Heaviness of the Breast, nocturnal Heats, a quick and increas'd Pulse, a violent Cough, a Coryza, a Heat of the Fauces, disturb'd Sleep; in the Morning, an Eruption of Sweat, a Heaviness and Torpor of the whole Body, together with a Loss of Appetite.

The immediate Cause of these Symptoms is an acrid or caustic Serum or Lymph, lodged in the glandular Coats, and producing an Inflammation in them, accompanied with Pain, Tumor, and Redness. This happens in the whole Region of the Nostrils, Palate, and Fauces, the whole Aspera Arteria, and the Bronchial Ramifications; as also in the Oesophagus itself, the Stomach, and Intestines; for that all these Parts are affected, at one and the same time, is sufficiently confirm'd by the Hoarseness, the Cough, the Spitting of a viscid Matter, the Sneezing, the Heaviness of the Breast, the Nausea, which is sometimes so violent as to produce a Vomiting, the Heat of the Præcordia, the Gripes of the Belly, and the subsequent salutary Flux.

This Serum is principally produced by an Obstruction of Perspiration; and hence it happens, that, during the vernal and autumnal Equinoxes, this Fever most generally begins to rage; for, at these Seasons, the considerable Vicissitudes and Changes of Weather, from hot to cold, from dry to moist, and *vice versa*, affect the Surface of the Body in so different manners, that the Evacuations, necessary for the Preservation of Health, are greatly disturb'd.

For the same Reason, Catarrhs most generally seize those who are forced to sudden Changes of Air, and go from a hot to a cold, or from a cold to a moist Place; those who incautiously expose themselves to autumnal, nocturnal, cold, and moist Airs; those who lay aside their Winter Apparel too soon in the Spring, or begin to wear it too late in the Autumn; as also those, who, during the Equinoxes, having been blooded, or seiz'd with any copious critical Hæmorrhage, imprudently expose themselves to the free and cold Air.

This is also the Reason why Persons of spongy, lax, phlegmatic, and sanguine Habits, Infants, Children, and Women, are more frequently seiz'd with catarrhus Fevers, than Adults, Men, and Persons of a more robust and bilious Habit of Body: As also, why those are more generally subject to them, who indulge themselves in Watching; who wantonly run into Surfeits or Excess; and who, having over-heated their Bodies with Wine or Brandy, afterwards expose themselves to the cold and moist Air.

In those Patients also, who, after the preposterous drying up of an Achor, Tinea, or Itch, or who, after an unskillful and palliative Cure of a Coryza, or Cough, fall into catarrhus Fe-

yers, no other Cause of the Disorder can be suggested, than the Repulsion of the acrid and corroding Serum, which tends to bring on an Inflammation, from the Surface of the Body to the internal Parts.

But 'tis not to be doubted, that there is sometimes in the Air such a subtle caustic Matter, which, being received in Inspiration, insinuates itself into the glandulous Parts, thro' which it passes, excites Pain, Tumor, and Redness, and brings on a catarrhus Fever. This acrid Matter in the Air is certainly very soon generated in the Beginning of the Spring, when, in consequence of the Thawing of the Snow and Ice, the Ground is overflow'd with an effete Water, which, stagnating and becoming putrid, diffuses many noxious Effluvia into the Air. Hence it also happens, that, at this Time, Fevers of this Kind are for the most part epidemical.

But that Catarrhs, and catarrhus Fevers, are contagious, and affect those who are near the Patients, or are dispos'd for the Reception of the Disorder, is owing principally to this, that they are produc'd by a Peccancy of the Lymph, just as in all other Diseases of a contagious Nature, which are known to be produc'd by a Corruption, Vapidity, or Putrefaction of the Lymph.

When a benign catarrhus Fever seizes a Patient, the Physician, who is acquainted with these things, can easily distinguish it, by a Comparison of the different Symptoms, from the other Species of Fevers which daily occur, such as those of the slow, hectic, quotidian, double tertian, and triple quartan Kind.

He will also easily perceive a Difference betwixt these Disorders of the glandular Coats in the Fauces and Nostrils, arising from a Lues Venerea and Scurvy, and those produc'd by a Catarrh; for, in the former there is only a Corrosion and Ulceration, by the caustic lymphatico-serous Matter, without a Fever; whereas, in the latter, besides the Corrosion, there is something of an inflammatory Nature, arising from a Stagnation of the more subtle Part of the Blood, with a Fever.

The Difference will also be obvious betwixt a catarrhus Fever, and that which accompanies a Rheumatism; since, in the former, the internal glandular Coats are affected, and an Evacuation succeeds; whereas, in the latter, the external Coats of the Muscles are only affected, and the Disorder is not terminated by a critical Evacuation.

But 'tis somewhat more difficult to distinguish a benign catarrhus Fever from one of the malignant Kind, especially at the Beginning, on account of the many Symptoms they have in common with each other: But the latter differs from the former in this, that it gives a more violent and sudden Shock to the Strength, produces a perpetual Watching, which is succeeded by a disorderly and uneasy State of Mind; and that it is more contagious, and, for the most part, accompany'd with petechial Eruptions and Spots.

The larger the Quantity of the impure Blood and Serum is, the more violent are the Symptoms, and the longer the Disorder is protracted; as is sufficiently evident in scorbutic Patients, and in Cases where the Matter of the Purple Fever remains pent up in the Body.

In hypochondriac Patients, besides the Protraction of the Disease, in consequence of the weaken'd Tone of the Stomach and Intestines, and the Propensity to flatulent and spasmodic Strictures, several violent Symptoms generally appear, especially an Uneasiness at the Præcordia, a Difficulty of Breathing, and a Restlessness, accompany'd with an Inflation, and heavy kind of Pain in the Hypogastrium.

Those who abound in Blood, who lead intemperate Lives, who drink liberally of the worse Sorts of Wine, and are fond of acid and saline Aliments, feel a Heat towards the Evening, are afflicted with a dry, but severe, Cough, and their Sleep is disturb'd and interrupted.

Women also, who from Frights, or any other Cause, labour under a Suppression of the Menstrues, are, during this Fever, afflicted with an Uneasiness of the Præcordia, accompany'd with frequent Faintings, a considerable Weakness of the whole Body, a Sense of Heat and Cold, alternately succeeding each other, in the Skin; and these Symptoms are exasperated principally in the Night-time.

But this Fever is of itself benign, free from Danger, if skilfully treated; and, for the most part, the Patient is cur'd, and all his Weariness remov'd, in seven, or, at most, fourteen Days. Besides, other Disorders of the Head, Cephalalgias especially, and Hemicranias, are happily carry'd off by a succeeding Catarrh, and a Discharge from the Nostrils.

In the Beginning, a catarrhus Fever is often immediately carry'd off by an Increase of Perspiration: In others, after some Days, either by a plentiful Expectoration of a viscid Matter, or by a liberal Discharge of a mucous Serum from the Nostrils: In some also by frequent Stools; and in others, whose Urine was before thin, and discharg'd in a small Quantity, by having that Fluid evacuated copiously, and so heavy as at least to contain double the Quantity of solid Matter it did in its natural State.

VOL. II.

The Methods of PREVENTION and CURE.

In order, therefore, to prevent the Attacks of Catarrhs, I advise all those things to be avoided, by which I have already said they might be brought on; and, in the Spring and Autumn, let the Patient be seasonably blooded, let him eat moderately; let his Perspiration be kept free and uninterrupted, and let him use proper Exercise: But, in those who are young, and of a lax moist Constitution, and for that Reason, according to *Hippocrates, Sect. 6. Aph. 2.* frequently affected with catarrhus Defluxions, and rheumatic Pains, I have often, with Success, order'd the Patient, for forty Days, to drink a Decoction prepar'd of China-root, Sarsaparilla, the Bark of Sassafras, Raisins; and a little Cinnamon, injoining him, at the same time, to use no Food besides roasted Flesh, toasted Almonds, and Biscuit. He must also, in order to keep his Body soluble, frequently use Ptisans prepar'd with Manna; and, when the Cure is finished, he must daily take some Medicine capable of corroborating the Stomach, before Dinner, in Water or Wine.

In the Cure of catarrhus Fevers, these three Intentions are principally propos'd: First, that the saline Acrimony of the acrid Lymph should be obtunded and corrected; secondly, that the disturb'd and interrupted Perspiration, which is the primary Cause of the serous Congestion in the internal Parts, should be restored, and reduc'd to Order; and, thirdly, that the Evacuation of the thick and viscid Mucus should be promoted, and its Generation for the future prevented.

The Acrimony of the Lymph is not only corrected by the absorbent Bezoardic Powders, but also by all moistening and oleous Substances, such as Oil of sweet Almonds, Sperma Ceti, Cream, Emulsions of Almonds, or Pine-nuts with white Poppy-seeds, Water-gruel, Decoctions of Turneps and Barley, Broth of Capons and Hens, with the Yolks of Eggs. Among sweet Substances, Liquorice, and Infusions of it; *Spanish Juice*, and the Juice of Figs and Raisins. If the Acrimony is too subtle and corroding, the gentler Anodynes are to be used; among which, the best are Preparations of Poppies, Saffron, the Pilulæ Wildegansii, the Diacodium of *Montanus*, and the Pilulæ de Styraçe, the Composition and Use of which are both antient and highly approv'd of, as appears from *Trallian. Lib. 5.*

As for promoting the Excretions, especially that by the Skin, the most salutary of all the others, this Intention is answer'd by warm Infusions of the Herbs, Paul's Betony, and Hyssop, the Roots of Liquorice, Flowers of Elder, and the Seeds of Fennel and the wild Poppy: The more fix'd diaphoretic Powders are also advantageously exhibited, especially with pectoral and antispasmodic Waters: Nothing also contributes in a more salutary Manner to the Evacuation of the Serum thro' the Skin, than Motion and Exercise, which *Hippoc. Lib. de Insomn. Sect. 4.* and *de Viâtu acut.* highly extols for promoting a Diaphoresis in the Morning, after Friction. In feverish Disorders, however, it must always be used with Caution, being seldom or never proper.

The viscid Matter remaining in the Glands of the Fauces is to be evacuated by Pectorals, Figs and Raisins reduc'd to a kind of Syrup, with Spirit of Wine burn'd upon them, and the pectoral Balsam of *Meibomius*; as also by the pectoral Elixir prepar'd of Gum Ammoniac, Myrrh, Liquorice-root, Elecampane, Saffron, Gum Benjamin, and Oil of Anise; the solvent Quality of which may be still heighten'd by an Addition of the Tincture of Tartar, or of the vinous Spirit of Sal Ammoniac. But, for resolving and attenuating the Phlegm stagnating in the Cavities of the Nostrils, nothing is more effectual than the dry volatile Salt of Sal Ammoniac, impregnated with a few Drops of the pure, sweet, and unadulterated Oil of Marjoram; and frequently apply'd to the Nostrils.

Concerning the Application of these Remedies in general, we are to observe, that, in the Morning, it is expedient to promote Perspiration, by drinking warm Infusions of Herbs; Broths, and the Use of the correcting Bezoardic Powders; but, towards the Evening, Medicines of an anodyne and demulcent Nature are to be exhibited. But the particular Method of Cure consists partly in an Alleviation of the Symptoms, and partly in a proper Exhibition of the Medicines, with respect to the Dose and Order. The Exhibition is also to be accommodated to the particular State and Disposition of the Patient. But of this we shall speak more fully in the following Observations.

CAUTIONS and Clinical OBSERVATIONS.

Catarrhus Disorders, as well as all other feverish Indispositions, are to be treated in a very mild and gentle Manner; and the Patient is to be kept moderately warm, either in Bed, or by means of a Fire. He is, therefore, to abstain from Medicines which are too hot, drastic, and productive of Commotions, as also from a hot Regimen, because, by these, the acrid Matter is put into Commotions, and a seruid Disposition convey'd to the Parts: On the contrary, all refrigerating Substances, Acids, and whatever may disturb or obstruct Perspiration, are carefully to be avoided; Opiales also, and Preparations of the *Theriaca*, are to be us'd with the greatest Caution,

Caution, especially when the Head is weak and heavy, or when the Patient is old or costive.

The Diet is to be spare, and the Drink tepid and wholesome. The most proper is a Decoction of excorticated Barley, with Shavings of Hartshorn, Raisins, and Liquorice-root; but Wine and Brandy, on account of their stimulating Acid, and the Spirit they contain, which increases the Heat, are of no Use in this Species of Fever. In the Decline of the Disease, however, when the Excretions are begun, it has been observ'd, that good Wine, pretty liberally drank, has prov'd beneficial, because it promotes the Circulation of the Blood, and maintains an equable Perspiration.

When the Effervescence is violent, and a Fervor of the internal Parts perceiv'd, a few Grains of Nitre may be advantageously mix'd with the Bezoardic Powders, and Emulsions must be plentifully drank.

When, during this Disorder, the Fæces are indurated, and the Patient costive, besides Water-gruel, Decoctions of Manna, Prunes, and Raisins, nothing is more proper than emollient Clysters. Ten or twelve Grains of the Pilulæ Aleophranginæ or Becherianæ, with four Grains of the Pilulæ de Styraçe, taken at Bed-time, are of singular Service, because they not only render the Body soluble, but moderate the violent dry Cough.

If, in the Decline of the Fever, the Cough is too moist and obstinate, and the Matter producing it too copious, a Derivation and Evacuation of the pituitous Humours, by Stool, are excellently promoted by two or three Ounces of a Decoction of Manna in Water of Paul's Betony. The Pilulæ Balsamicæ Becheri, as also the Pilulæ Ruffi, prepar'd of equal Quantities of Aloes, Myrrh, and Saffron, are of considerable Service in Cases of this Nature.

But, in the Beginning of a catarrhus Fever, purgative Medicines, especially those of the more acrid Kind, are highly improper, because they invite the acrid serous Humours to the Intestines, excite Gripes and a Flux, and put the Patient in Danger of being seiz'd with a slow Fever: And, in a young Woman of a plethoric Habit, I knew an Inflammation of the Stomach brought on by an Exhibition of Mercurius Dulcis, with Resin of Jalap.

When the Cough is violent and racking, it is to be allay'd with recent Oil of sweet Almonds, mix'd with Syrup of Maidenhair, as also with the following Electuary:

Take of the Oil of sweet Almonds, three Drams; of Sperma Ceti, one Dram; of white Sugar-candy, and Syrup of Violets, each an Ounce; of Saffron, one Scruple; of the Oils of Anise, Mace, and Sassafras, each six Drops: Mix up into an Electuary, of which a small Quantity is to be taken frequently.

When, in Women labouring under a Suppression of the Menses, the above-enumerated Symptoms appear, the Body is to be render'd soluble by Clysters, and Diaphoretics must be exhibited, in order to promote the Circulation of the Blood towards the Surface of the Body. In this Case we may advantageously add one Grain of Saffron, or a few Grains of the Flowers of Sulphur, to the Bezoardic Powders; but the Patient must abstain from all expectorating and sweet Substances.

The Symptoms which happen to hypochondriac Patients, arising principally from a preternatural Inflation of the Stomach, are most commodiously remov'd by emollient and carminative Clysters, as also by carminative Essences, in Conjunction with Pectorals.

When, after the Fever, the Lungs remain so relax'd as to produce too copious an Expectoration, we may, to the Bezoardic Powders, add a few Grains of the Bark of Cascarilla, or a few Drops of my Balsam of Life may be exhibited towards Night.

Venefection, seasonably instituted, under a proper Regimen, is of singular Service for preventing the frequent Attacks of Catarrhs in plethoric Patients; but, during the catarrhus Fever, it is entirely to be abstain'd from; for, in this Case, we are taught by Experience, it protracts the Disorder.

In a violent and long-continu'd Cough, sweet Pectorals, and ineraffating Medicines, exhibited in too large Quantities, dispose the Patient to Cachexies, and phthisical Disorders, not only by impairing the Appetite, and digestive Faculty, but also by weakening the Tone of the Lungs.

Tho', according to Hippocrates, in the third Section of the sixth Book of his Epidemics, those who are afflicted with Head-achs, Heaviness, and Hoarseness, when seiz'd with a catarrhus Fever, are less subject to Relapses, when the Disease terminates naturally with a Desfluxion; yet, lest a Foundation should be laid for some other Disorder, I would, with the same Hippocrates, advise the recovering Patients to have a due Regard to their Food, and the State of their Stomach; and, in order to carry on a due Perspiration, to continue for some time the Use of their Infusions in the Morning. Hoffman.

CATARTISMUS, κατάρτισμος, (from κατάρτιζω, a Verb,

used by P. Ægineta to signify the Reducing of a Luxation, and deriv'd from ἀρσιν, entire) is, as Galen says, a Translation of Bones from a preternatural to their natural Situation.

CATASARCA, κατάρσασκα. The same as ANASARCA, which see.

CATASCEUE, κατάρσκειν, in Galen, Lib. 3. de San. tuend. Cap. 2. a Term in Use among the Athletæ, or Wrestlers, and signifies, as he says, that complete Course of Exercises perform'd by the Athletæ, their Bodies being prepar'd for them, which sometimes lasted a whole Day. Galen also uses the Term Comment. 2. in Lib. de R. V. I. A. to express the organical Structure of the human Body.

CATASCHASMOS, κατάρσασμος, deriv'd of ἀρσιν, signifying, among other various Senses, to scarify, and to open a Vein. Scarification. Castellus.

CATASEISIS, κατάρσεισις, from σείω, to shake, is properly a Concussion, but seems to mean a Distention or Extension, Lib. περι ἀρσιν, Cap. 24. So ἀνασειειν is expounded, in Suidas, by ἐκτείναν, to extend, to shake off; and, in Hesiod, αἰγὶδ' ἀνασειτᾶσα may be render'd, "She extended or shook her Buckler." Foesius.

CATASTAGMOS, κατάρσασμος, deriv'd from ἀρσιν, to distil, was the Name which the Greeks, in the Time of Celsus, had for a Distillation. Celsus, Lib. 4. Cap. 4.

CATASTALAGMOS, κατάρσασμος, ἀλάξις, from ἀλάζω, to distil, means the same as the preceding. Castellus.

CATASTALTICUS, κατάρσαστικός, from κατάρσιν, to restrain, of σέλλω, to contract: An Adjective in frequent Use, and signifying styptic, astringent, repressing. It is sometimes, thro' Ignorance of the Greek, barbarously wrote Castalticus. The simple Word Stalticus, σάλτικός, bears the same Meaning.

CATASTASIS, κατάρσασσις, from καθίστημι, to constitute, of ἵστημι, to stand, signifies, in general, the Constitution, Habitude, State, or Condition, of any thing. The Word is frequently used by Hippocrates, to signify the Constitution of the Air or Seasons, or the Nature of a Disease; and he means by it in general, as Galen explains him, the essential Nature, or Form, ἰδέαν, of Things. It is spoken also of the Colour and external Habit of the Body, Prorrh. 2. and, in Lib. de Fracl. it signifies the Reducing of a Luxation, where κατάρσασσις is expounded by Galen καθίστασις, "A Reconstitution to, and "Reposition in, the proper Place."

CATASTEMA, κατάρσασμα, of the same Derivation and Signification generally as the former; but is more particularly used to express the Clothing, Air, Motion, and external Habit, of the Body. In Galen's Exercit. it is expounded a Leaning or Resting upon, and quoted from the second of the Epidemics; but no such Word is found in that Book. The Verb κατάρσασσις is there also expounded by ἀποσκήπτω, "to slip, or fall down;" but (Lib. 1. περι γυναικ.) κατάρσασσις signifies to be moderated, check'd, repress'd, being us'd to express the Effects of a cooling and astringent Medicine upon Bile.

CATASTOLE, κατάρσασσις, in Lib. περι εὐχημον, signifies a plain and modest Dress, long Garments; κατάρσασσις is expounded by Hesychius, περιβολή, "Clothing, Vesture;" by Suidas, σολή, a Gown, or long Robe.

CATATASIS, κατάρσασσις, from κατάρσιν, to extend, or to place. It has, in Hippocrates, two Significations, one of which is, the Extension of a fractur'd or dislocated Limb, in order to replace it; the other is, the actual Replacing it in a proper Situation.

CATATRIPSIS, κατάρσασσις, from τρίβω, to rub, signifies the Attrition or Friction of Machines. Hippocrates applies it to the Organs of the human Body.

CATAUDESIS, κατάρσασσις. Vociferation.

CATAXA, κατάξα. Actius and Acturius express by this raw Silk, or Silk before it is dy'd.

CATE. A Name by which the Terra Japannica, or Catechu, is sometimes call'd.

CATECHESIS, κατάρσασσις, from κατάρσιν, to instruct by Word of Mouth. It implies Instruction, or Directing by Word of Mouth, in Hippocrates.

CATECHU. Japan Earth. See TERRA JAPANNICA.

CATEIADION, κατάρσασσις, a very long Instrument, which was introduc'd into the Nostrils, in order to provoke an Hæmorrhage, in the Cure of the Cephalalgia, or Head-ach. It is mention'd by Aræteus, de Curat. Morb. diut. Lib. 1. Cap. 2.

CATELLUS. A Puppy. Puppies were used by the Antients as a Part of Diet, and are by Authors directed to be laid upon various Parts of the Body when in Pain. See CANIS.

CATHÆRESIS, καθάρσασσις, from αἰρῶ, to take away, implies any sort of Detraction or Subtraction of a Part of the Body, by any kind of Evacuation whatever.

CATHÆRETICA, καθάρσαστικά, of the same Derivation as the preceding. Cathartics, that is, Remedies which consume superfluous Flesh. Celsus distinguishes these, which he calls Rodentia, from Cautics, which he calls Crustam inducentia. See CORRODENTIA.

CATHARMA, καθάρμα, from καθάρω, to purge, imports the Excrements purg'd off from any Part of the Body, as the Stomach,

Stomach, Intestines, or Bladder. It also signifies any thing sacrificed by way of Expiation, with a View of averting a present or impending Judgment of Heaven.

CATHARMOS, καθαρμός, of the same Derivation, implies Purgation by Medicines; or an Expiation, that is, the Cure of a Disorder by superstitious Ceremonies, or Sacrifices. The Cure of the King's Evil by the Royal Touch, if there was such a thing, might be said to be perform'd by a CATHARMOS.

CATHAROS, καθάρως, is used by *Hippocrates* to express pure, or unmix'd; and, in this Sense, is apply'd to the Excrements. Sometimes it imports clear, limpid, or not turbid, and is an Epithet to Urine. It also signifies Clearness of Vision, or a Resplendence of the Eye, when apply'd to that Organ.

CATHARSIS, καθάρσις, Purgation, whether natural or artificial. It implies Evacuations of all Sorts of offending Humours, discharg'd by any Way whatever, as by the Mouth, Anus, Uterus, urinary Passage, Pores of the Skin, &c. Catharsis also signifies the menstrual Purgation, and that of the Lochia.

CATHARTICA, καθάρτικα. Purging Medicines, as now generally understood; but it also implies Medicines which excite Vomiting, or Emetics.

Hippocrates was of Opinion, that particular Cathartics purg'd off, or attracted, as he expresses it, particular Humours: Thus, says he, a Medicine which purges the Bile, first attracts the Bile; but if it is too strong, or if its Operation continues too long, finding no more Bile to act upon, it purges the Phlegm, after that the black Bile, and then the Blood. This is what I apprehend Physicians mean, when they say there are such things as elective Purges, that is, Purges which act upon one Humour, and not upon another. Others deny the elective Faculty of Purges, because they cannot give any Reasons why a cathartic Ingredient should act upon one Humour more than another, which, however, will determine nothing in this Dispute. 'Tis certain, that amongst Simples in general, some are inclin'd to act upon one Gland, Organ, and Part of the Body, whilst others are disposed by their Nature to act upon others. Thus the Operation of some is determin'd to the Kidneys, that of others to the Liver, Testicles, or salival Glands. These, therefore, may be said to be elective, with respect to the Humours separated in those particular Glands. As to Cathartics, supposing they only acted upon the Stomach and Intestinal Tube, we may readily comprehend, that some Kinds may act upon the Glands situated in the Stomach, and destin'd to secrete a Juice useful in the Digestion of the Aliment, whilst others operate principally on the Liver, Pancreas, or Intestinal Glands, which last may possibly be of various Kinds, and destin'd to separate distinct Fluids. In this Sense, then, Purges may, without any Impropriety, be said to be elective.

The cathartic Simples known to *Hippocrates*, and by him employ'd in Medicine, were generally such as operated both by Vomit and Stool, or at least with much Violence downwards; such were the white and black Hellebore, as Authors generally represent them: But with respect to the black I must remark, that the Plant which we make use of under that Name, is possess'd of but a very weak cathartic Virtue. Besides these, he made use of the Grana Cnidia, suppos'd to be the Seeds of the Thymelæa; and by others, those of the Mezereon; the Cnecorum or Cnecrum, which is the Thymelæa, or, perhaps, the Mezereon, or else the Thymelæa minor; the Peplium and Peplus, different Species of the Tithymalus; the Thapsia; the Juice of the Hippophaes; Elaterium; Colocynthis; Scammony; the Lapis Magnesius; the Cnicus, suppos'd to be what is usually call'd the Carthamus. *Hippocrates* also takes notice of a white Poppy, different certainly from what is now call'd by that Name, and which some take for the Papaver Spumeum, others for the Peplus.

As these Purgatives were, for the most part, highly drastic, our Author always used them with the utmost Precaution. He never, for Instance, exhibited them, during the Dog-days; neither did he purge pregnant Women, except in case of that Turgescence of the Humours, which we shall afterwards mention; and even then he tells us, that 'tis dangerous before the fourth and after the seventh Month of Gestation. *Hippocrates* must, for the same Reasons, have abstain'd from purging Children and old Persons, or at least have done it very rarely.

The principal or most frequent Use he made of Purgatives was in chronical Disorders; but in acute Diseases, he was much more circumspect in using them. Among all the feverish Patients, and others labouring under acute Disorders, whose Cases he gives us in his Epidemics, there are very few to whom he exhibited purgative Medicines; and he observes, that in certain acute Diseases the Exhibition of Purgatives has produc'd very bad Effects.

Some may possibly conclude from this, that *Hippocrates* absolutely rejected the Use of Purgatives in acute Disorders; but 'tis obvious, from other Passages of his Works, that he was not of this Opinion; for he really exhibited purgative Medicines in acute as well as chronical Diseases, tho' not so often. He

thought, for Instance, that Purging was proper in Pleurifies, when the Pain is under the Diaphragm; and, in this Case, he gave black Hellebore, or Peplium mix'd with Laserpitium. In various Passages he affirms, that Purgatives may be exhibited in acute Disorders, provided the following Precautions are used.

The principal Rule *Hippocrates* lays down, with respect to Purging, is, that *we ought only to evacuate the concocted Humours*, but not such as are still crude; and that we ought not to purge in the Beginning of the Disease, except when there is a violent Effervescence of the Humours, which rarely happens. By the Beginning of the Disease *Hippocrates* understood all the Time that interven'd betwixt the first and the fourth Day. He was not the first who observ'd, that the Patient became worse by carrying off the Humours, or Purging, before that Time; for the Egyptian Physicians had made the same Observation, and *Hippocrates* might have learn'd it from *Democritus*, who travel'd for a great while thro' Egypt; or from some Egyptian, supposing that his Predecessors the *Asclepiades* had not made the same Observation; or his own Sagacity, and Attention to Cases, might have suggested it to him.

This seems to be contradicted by the twenty-ninth Aphorism of the second Section, where we are told, that in the Beginning of Diseases we must move, that is, purge, what we think ought to be purg'd. This Aphorism has, in all succeeding Ages, employ'd the Wits of Physicians, to reconcile it with the former. *Galen* endeavours to vindicate *Hippocrates*, by making the Word *move* to signify the Exhibition of all the Remedies necessary for the Relief of the Patient, among which he reckons, in a particular manner, Venesection and Purging; so that the Movement or Purging here spoken of, is rather produc'd, according to *Galen*, by the former than the latter of these Remedies; though the same Author acknowledges, that Purges may sometimes, tho' more rarely, be exhibited in the Beginnings of acute Diseases. This Explication of *Galen*'s might be admitted, if there was not a third Aphorism which explains this, and which appears contrary to the Sense of *Galen*; for in the twenty-fourth Aphorism of the first Section, we are told, that we must rarely purge in acute Diseases; and that it must be done in the Beginning, after having carefully examin'd the State of the Patient. *Galen* endeavours to reconcile the apparent Contradiction between this Aphorism and the other, by saying, that it is in chronical Diseases we must always wait for the Concoction of the Humours before we purge; but that, in acute Disorders, we may purge in the Beginning, when there is an Effervescence or Turgescence of Humours; and he adds, that the Rareness of this Case induces *Hippocrates* to advise Physicians carefully to examine the State of the Patient before exhibiting Purgatives.

It appears, that *Hippocrates* sometimes exhibited Purgatives in the Beginning of acute Diseases; and, besides the Aphorism already quoted, he elsewhere expressly affirms, *That we ought to purge in the Beginning of Fevers, when the Urine of the Patient is turbid; but that we ought to abstain from it when it is clear.* It must, however, be confess'd, that he rarely put this Method in Practice, whatever the State of the Patient might be. The small Number of Patients labouring under acute Distempers, to whom, as we learn from his Epidemics, he exhibited Purgatives, is a Proof of this.

In his Book *De Ratione Viæ in Acutis*, he gives us this important Advice, which relates to the first quoted Aphorism. "Those," says he, "who endeavour, by a purgative Medicine, to resolve or dissipate Inflammations formed in any Part, derive nothing from the particular Part where the Inflammation is, by reason of the Tension, and because the Disorder is as yet crude. On the contrary, they fuse or corrupt what remains sound and uncorrupted in the Part." But to return to the true or apparent Contradictions in the Aphorisms already quoted: It would be no surprising thing, that there are Contradictions in them, if, as *Galen* supposes, it was true, that some of them were spurious; we might from thence infer, that some of these now mentioned are of the spurious Kind, tho' *Galen* does not own, that they are.

Besides, *Hippocrates*, in the ninth Aphorism of his second Section, advises the Physician, before Purging, to attenuate the Patient's Humours, and dispose them for Evacuation, by diluting them sufficiently, that they may pass off with the greater Ease.

The preceding Criticism, relative to the imaginary Contradictions in the Aphorisms above quoted, are Mr. *Le Clerc*'s, an Author of great Judgment, which, however, he does not seem to have shewn in these Remarks; for I can perceive no Shadow of a Contradiction in them. In the Aphorism first quoted, which is the twenty-second of the first Section, the Precept laid down amounts to this: Purge off, says he, and move the concocted Humours, but not those which are crude; in consequence of this Maxim, Purging, in the Beginning of an acute Distemper, must be improper, because at that time the Humours are generally crude: If, however, there is a great Effervescence or Turgescence of Humours, which does not often happen,

happen, Purging may be allow'd, in order to diminish their Quantity, and moderate the Symptoms thence arising.

This is, perhaps, one of the most important Doctrines in the Art of Healing, not only with respect to Purging, but to all other artificial Evacuations whatever, unless those which are calculated to moderate the Symptoms, and clear the Primæ Viæ of Impurities. For if, with *Sydenham*, we consider an acute Distemper, as the Instrument made use of by Nature, that is, the vital Powers, to remove something which interferes with the regular Circulation of the Blood; and suppose this Obstacle to be a Part of the vital Juices concentered, and stagnating in the Vessels, it is evident, that, in such a Case, the usual Quantity of Humours must circulate in a smaller Space, than when the Vessels were all pervious and unobstructed; hence the Blood must return to the Heart more frequently than when the Vessels are unobstructed, the Heart must, for this Reason, contract more frequently, the Blood must move with more Velocity, the Attrition betwixt the Solids and Fluids, and consequently the Heat, must be increas'd. The Mass of Blood, therefore, acting upon the Matter concentered, and stagnating in the Vessels, with a greater Velocity and Force, must contribute to its Resolution, that is, to the rendering it fluid, and capable of circulating in the Vessels, and being carry'd out of the Body. The increas'd Heat, also, carries on the same End; for, as is observ'd under the Article *ALBUMEN*, the Serum of the Blood, when concentered, will, in a particular Degree of Heat, resolve spontaneously. Here, then, the vital Powers raise Motion and Heat, as the most effectual Means of resolving the coagulated and obstructing Humours.

From what has been said, 'tis evident, that whilst the offending Humours are in a State of Concretion and Stagnation, 'tis in vain to attempt their Discharge by Cathartics, which defer, says *Hippocrates*, till evident Signs appear of their Concoction, that is, till they are resolv'd and attenuated, either spontaneously, or by Art, sufficiently to be carried off by the Intestinal Glands, which cannot happen whilst the Disease is in its Vigour.

In the second quoted Aphorism, which is the twenty-ninth of the second Section, the Word which Mr. *Le Clerc* interprets *purge*, is *κίνησις*, move, and may signify any Attempt whatever to remove the Cause of the Disease, as well as Purging. It means, therefore, no more than this: When it appears necessary to attempt any thing for the Relief of the Patient, whether by Bleeding, clearing the Primæ Viæ of Impurities by gentle Laxatives, provoking the Stomach to discharge its Contents, by exhibiting large Quantities of mild Fluids, by Clysters, Fomentations, Baths, &c. do it in the Beginning; but in the Vigour of the Disease it is prudent to rest.

The third Aphorism is the twenty-fourth of the first Section, and by no means contradicts either of the former. For the Doctrine it conveys amounts to this: In acute Diseases, especially in the Beginning, seldom exhibit drastic Purges, and never without due Consideration. I have said drastic Purges, because these are certainly what are meant by *Hippocrates*.

Thus we see Mr. *Le Clerc*, as well as many others, have been lavish of their Criticisms, without any apparent Necessity.

Hippocrates asserted that, with respect to the Choice of Purgatives, it was necessary to give Medicines which purge Bile to Persons of bilious Habits, and such as labour under bilious Disorders; in pituitous Disorders, such as purge Phlegm; in melancholic Indispositions, such as purge Melancholy, or black Bile; and in Dropsies, such as purge Water. He added, that we know whether a Purgative evacuates what it ought to have done, by the subsequent good or bad State of the Patient. If the Patient becomes well, 'tis a Sign, that the Medicine has effectually evacuated the peccant Humour. On the contrary, if he becomes worse, *Hippocrates* is of Opinion, that whatever Quantity of Humours is discharg'd, yet still the particular Humour, which occasions the Disorder, is retain'd; for he did not think, that the Advantage of a Purge bore a Proportion to the Quantity of Matter it evacuated, but to its Quality, and the Effects it produc'd.

But when he had an Intention to solicit the Humours from the most remote Recesses of the Body, he used the most drastic Medicines; and white Hellebore, which is class'd among the Purgatives, was principally employ'd by him on this Occasion. But, in his first Book *De Dieta*, he orders it particularly for melancholic Patients, and such as were mad. From the great Use made of this Medicine by all the antient Physicians, came the Proverb, *To stand in Need of Hellebore*, to imply that any one had lost his Senses. He also exhibited it in Desfluxions, which, according to him, come from the Brain, and fall upon the Nostrils and Ears, or which fill the Mouth with Saliva, or produce obstinate Head-achs, a Weariness or preternatural Heaviness, or a Weakness of the Knees, or any Swelling of the whole Body. He also prescribed it for phthical Patients, in Conjunction with a Decoction of Lentils; for those afflicted with that Species of Dropsy call'd *Leucophlegmatia*, and in other chronical Disorders. But we do not find, that he used it

in those of the acute Kind, except in a *Cholera Morbus*, in which, as he tells us, in the fifth Book of his Epidemics, he exhibited Hellebore with Success. In this Disorder the Patient vomits too much; but the Vomiting is remov'd by an Emetic, as it sometimes happens.

Some took this Medicine fasting, but most us'd it after Supper; and the Reason why *Hippocrates* prescribed it after Meals was, probably, that it might mix itself with the Aliments, and by that means, losing some of its Acrimony, act with less Violence on the Stomach. He also sometimes gave *Sesamoides*, with an Intention to vomit; and sometimes he exhibited it in Conjunction with Hellebore. We must also observe, that in some Cases he used a Species of Hellebore, which he calls *μαλθακὴς ἐλλέβορος*, soft or sweet Hellebore. This may possibly have been a particular Preparation of Hellebore corrected, in order to render its Action less violent.

When *Hippocrates* had only an Intention to keep the Belly open, or procure an Evacuation of the Excrements contained in the Intestines, without soliciting the Humours from other Parts, he principally employed some Simples, such as the Herb Mercury, or Cabbage, the Juice and Decoction of which he order'd his Patients to drink. With the same Intention he prescrib'd Whey, the Milk of Cows and Ases, with an Addition of a little Salt. This he sometimes order'd to be boil'd. He also sometimes exhibited a large Quantity of Ases Milk alone, in order to render the Body soluble. In one Passage of his Treatise *De Ratione Viæ in Acutis*, he prescribes sixteen *Heminæ*, a Measure nearly equivalent to our Half-pint. In the seventh Book of his Epidemics, we find an Instance of a young Man to whom he exhibited nine *Heminæ* in two Days; a much smaller Quantity than the former. We may also affirm, that as the Time of taking the sixteen *Heminæ* is not specified in the former Passage, we may suppose, that this Quantity of Milk was design'd for more than one Day.

Hippocrates also sometimes seems to make mention of certain Hypocathartes, or Demipurgatives. But the Word he uses is equivocal, and may equally signify an incomplete Purging, as some Commentators explain it, and a Purging by the Anus, or an ordinary Purging, in Opposition to a Vomiting, which is a Purging by the Mouth.

Hippocrates also used Suppositories and Clysters, in order to render the Body soluble. The Suppositories were compos'd of Honey, the Juice of the Herb Mercury, Salt, Nitre, the Powder of Coloquintida, and other acrid Ingredients, in order to irritate the Anus, into which they were introduced either round as a Ball, or in an oblong round Form, almost like one's little Finger, and made longer or shorter, according to the Necessity of the Patient. The Clysters prescrib'd by *Hippocrates* were Milk, and unctuous Ingredients, mix'd with Decoctions of Chiches, or Sea or Salt-water. At other times he used a Decoction of Blites, or other Herbs of a like Nature, in which he dissolv'd Honey, Oil, and Nitre, or other Ingredients, according as his Design was to attract, scour, irritate, or correct, and, in a Word, as the several Diseases he treated requir'd. The Quantity of the Liquor amounted to four *Heminæ*, which seems to imply, that this Quantity serv'd for several Clysters, repeated after each other.

Cicero de Natura Deorum, L. 3. says, that the third *Æsculapius*, Son of *Arfippus* and *Arfinoe*, invented Purging. But the first Instance in History of the Exhibition of a Cathartic, is in the Daughters of *Prætus*, who were purg'd by *Melampus*, and by this means cur'd of Madness; see the Preface.

Erasistratus was of Opinion, that those Evacuations which are caus'd by Cathartics, proceed from the Blood, and the solid Parts of the Body, which are, as it were, fus'd; inasmuch that Cathartics make, instead of evacuating, Humours. Scammony, for Example, changes the Blood to Bile; the Flowers of Brass convert it into Water; the Grana *Cnidia*, and *Carthamus*, change it into Phlegm.

Asclepiades was of the same Opinion, and said, that those who found a Cure, immediately upon an Evacuation by Purging, did not recover, because some particular Humour was taken away, but because the Plenitude of the whole Habit in general was diminish'd. He thought also, that Plenitude was not the immediate, tho', perhaps, it might be the antecedent, Cause of Diseases, or a *Causa per Accidens*. For this Reason he seldom made use of Purges; but thought Clysters sufficient, which he made use of in most Distempers; however not so frequently as other Physicians.

All the Methodics were utterly against Purging; and *Gælius Aurelianus* is of their Party. However, he allows of it in a Dropsy. He prescribes Euphorbium given with Mulsim, in the Quantity of two or three Cochlearia, or diluted with the Yolk of an Egg. He prescribes also a Decoction of Squills.

N. B. Amongst the Antients there were two Kinds of Cochlearia: The greater, which contain'd a Dram; and the lesser, which contain'd a Scruple.

Plutarch was an Enemy to Purges.

We are oblig'd to the *Arabians* for the whole Tribe of milder Purges.

The *Arabians* not only found out milder Purges than the *Greeks* made use of, or were acquainted with, but, when they gave the old rough ones, it was in a smaller Quantity.

As Purging is of very great Importance, it will be proper to enter upon a full and thorough Examination and Inquiry into the Nature and Causes of intestinal Excretion. A Discourse on this Head cannot be thought improper for this Place, because many are too subject to despise this Kind of Evacuation, and others profess to set a much higher Value on Discharges by the urinary Passages, or by means of Clysters.

Pejer, who first discover'd the intestinal Glands, ascribes to them the Function of supplying a Humour for diluting and elaborating the Chyle; and supposes them to be the Source from whence such vast Discharges follow, upon the Exhibition of a Cathartic. Some deny, that so great Plenty of Humours can be excreted from these Glands, either naturally, or by the Assistance of Art; and the Reason why they doubt how this can be effected by natural Excretion, seems to be their being at a Loss to comprehend, how a Cathartic can derive so vast a Quantity of Excrements from little more than this one single Source. But this Doubt may very easily be solved, by reducing the Matter to a Calculation.

By the static Laws of *Sanctorius*, Evacuations by Stool, compared with those made through the Pores of the Skin, are as one to ten; wherefore, in the Space of four-and-twenty Hours, the Proportion will be as four Ounces, six Drams, one Scruple, four Grains, to forty-eight Ounces; or four Scruples, sixteen Grains, to forty-eight Scruples in an Hour. In cold Countries, where Perspiration is less, the Discharges by Stool may, perhaps, rise a little higher. This last-mention'd Evacuation is, by those who dispute upon these Subjects, injudiciously confounded with that Excretion which is made by the Glands; but, to a Person who attentively considers both, they will appear vastly different. The Contexture of the Skin, and the Intestines, appears to be nearly the same, and both are interspersed with Glands, which, tho' not very evident to the naked Eye, are easily discern'd by Help of the Microscope. And Nature has wisely provided for the more commodious Exercise of this Excretion by the Intestines, in furnishing their Coats with vast Numbers of Blood-vessels. The Skin, taken at a middle Rate, contains about two thousand six hundred and forty square Inches in Surface; and the Intestines, which are almost thirty Feet in Length, and, taken one with another, near four Inches in Compass, constitute a Cylinder, whose Surface amounts to one thousand four hundred and forty square Inches; so that the Superficies of the Intestines amounts to more than half that of the Skin; but, because the Intestines are not so thick set with Glands as the Skin, let the Superficies, from whence any Humour is evacuated, be reckon'd as one to four. If, thro' the Skin, then, in the Space of an Hour, forty-eight Scruples perspire, the Intestines will discharge twelve. Nor shall we be scrupulous in admitting so plentiful an Efflux of Lymph from the Intestines, if we consider, how much wider the Orifices of the excretory Vessels are in the Intestines than in the Skin, which is manifest from the Glands themselves, which are much larger in the Intestines than in the Skin.

According to this Estimate, then, it appears, that these Glands are both sufficient and accusom'd to supply far greater Quantities than what are discharged by Stool. But, since the Recrements of the Aliments make a great Part of the Stool, or rather the greatest Part of them, because they are solid, it would be easy to shew, that this Matter, which is thus derived from the Glands of the Intestines, is so far from being wholly evacuated this Way, that far the greater Part of it returns with the Chyle into the Lacteal Vessels, and is restor'd to the Blood-vessels, exactly in the same manner as Lymph uses to return from the Parts of the lower Belly. It is certain, then, and confirm'd by Experiments, that, whenever Chyle is wanted to supply the Lacteal Vessels, they are quite fill'd with this Lymph express'd from the Glands.

The Want of due Attention to this Distinction has led *Pitcairn* into an Error, who, when he reasons about the most commodious Way of Evacuation, makes the Proportion of cuticular Secretion to ventral, or by the Belly, greater than that of a hundred to one. For the Intestines, being vellicated by the continual Irritation of a Cathartic, discharge not only the Recrements of the Aliment, but whatever is excreted from the Glands; so that, from this one Cause only, the Belly discharges four times as much when excited by a Cathartic, as it does in its natural State.

Cathartics exert their Force principally two Ways, either by irritating the Coats of the Intestines with a kind of Stimulus, or communicating a swifter Motion to the Blood: The stronger Cathartics work both Ways. By their Stimulus Cathartics are enabled not only to express a greater Plenty of Lymph from the Glands, but to invite the Humours in such a manner towards them, as to render their Passage, thro' their excretory Ducts, more easy than thro' those of any other Glands in the Body: Hence there is a greater Conflux of those Humours, to

these Parts, or, which is the same Thing; the Celerity of the Blood is augmented in these Places, almost after the same manner, and with a like Effect, as the Skin, when corroded by a Vesicatory, discharges Serum. Cathartics which insinuate themselves into the Blood, cause it to circulate with greater Quickness; because they not only increase the Stimulus, but attenuate and dissolve the gross and tenacious Humours. That this is Fact, appears from the Heat which is excited by Cathartics; and the Pulse, which is stronger, fuller, and swifter, indicates the same Thing.

How great an Accession is made by this Increase of Velocity in the Blood to the ventral Evacuations, will easily appear from the following Calculation. The Mesenteric Arteries, which supply the Intestines, are of a Size, in proportion to that of the Base of the Aorta, as one to ten. Since it is certain, then, from Experiments, that the Aorta receives an Influx of four thousand Ounces of Blood every Hour, those Arteries will, in the same time, convey four hundred Ounces to the Intestines; some also may be carry'd thither from a Branch or two of the Cœliac Artery. The natural Excretion made from thence amounts to no more than twelve Scruples. For the sake of Calculation, let us suppose the Motion of the Blood to be increased to double its Velocity, as the Pulse demonstrates it really is, by a strong Cathartic; the Mesenteric Arteries will every Hour supply the Intestines with eight hundred Ounces of Blood; and, in the same Space of Time, the Glands will excrete nearly twenty-four Scruples; for every Secretion, supposing an Equality in other Circumstances, is to be estimated from the Velocity, as its only Standard. If the Velocity be increased to triple its former Degree, which, considering the Stimulus, is no absurd Supposition, especially at the Mouths of the Glands, there will be an Efflux of thirty-six Scruples; and if the Diameters of the excreting Vessels be in like manner doubled, as no doubt they really are, when the Cathartic is a little stronger than ordinary, the glandular Excretion of the Intestines will amount to one hundred forty-four Scruples, which is twelve times the Quantity design'd by Nature; so that, by this way of reckoning, in the Space of eight Hours, while the Cathartic is operating, the Glands may be drain'd of forty-eight Ounces.

But, when we make an Estimate of the Discharges excited by purgative Medicines, the Bile is not to be neglected, but brought into the Account. If, therefore, in the Space of one Hour, there be an Influx of two Drams of Bile into the Intestines, by the Force of Nature alone, as is shewn by Dr. *James Keil*, a Man much experienced in these Matters, a Cathartic will exhaust the Liver of six Ounces, supposing, as before, a triple Velocity in the Motion of the Blood, without the least Enlargement of the Diameters of the Vessels: Hence it is, that, in Evacuations of this Kind, prepared by Art, the Stools are generally bilious. And here it is to be observed, with respect to Bile, that the more hastily and plentifully it flows, the more diluted it appears. We find, then, by this reckoning, that, without including the Recrements of the Aliment, or the pancreatic Juice, the Quantity of Matter, which may be discharged by a Cathartic, amounts to four Pounds and a half; but, if the Vessels be at the same time enlarged, the Efflux of Humours will be much more copious, as being in a duplicate Ratio of the Diameters. This being the Truth of the Case, it appears how vain it is to expect the same Effects from Clysters, which may be convenient enough to cleanse and wash the Belly from Fæces, but are incapable of evacuating Bile, or, in any manner, affecting those Glands which are principally seated in the Ileum.

And thus, when the Intestines are deeply affected with some Distemper, when the Purging is too violent, the Motion of the Blood too swift, or the Mouths of the Vessels too much dilated, this Excretion by the Glands is augmented to a much higher Degree: For Example, in the Cholera Morbus, where an incredible Quantity of Humours is attracted, and disengaged by means of that Stimulus, with which the Intestines are continually irritated from Summer-fruits, or some other Crudities. That the Mouths of the Glands may be distended to much larger Dimensions than what are allotted them by Nature, is evident enough, not only from what they call the *symptomatic* Flux of the Belly, but also from the *critical* one, which often carries off the Matter, which, by means of a Cold, was thrown upon the Lungs and Fauces, in such a manner as to prove of equal Benefit with Perspiration; for, in this Case, that Redundance of Humours, which ought to have been eliminated thro' the Skin, seeks a Passage thro' these Glands; and, where it is obtain'd, such Evacuation must doubtless be ten times as great as that of the natural Lymph.

This Excretion by the Intestines proceeds by so constant a Law of Nature, and is found to be so necessary for the due Elaboration of the Chyle, that if these Glands should happen to be obstructed, or grow callous, there will succeed either an incurable Costiveness, or the Cœliac Passion, which latter is more especially the Consequence of such a Disorder, as appears from

from Dissections. But when this Obstruction of the Glands endures but for a short time, or some Portion of them happens to be closed up with glutinous Humours, so that the Lymph, which is so necessary for the Comminution and Elaboration of the Aliment, cannot be obtain'd in a sufficient Quantity, there arises that Species of the Coeliac Passion which admits of a Cure, and is distinguish'd from the chylous Flux, which, properly speaking, derives its Original from an Obstruction of the Lacteal Vessels.

If we carefully examine into the Use of the Glands, and the Lymph which they secrete, we shall fully discover the Cause of this Disease; nor do I think it can be more clearly shewn, from any Argument, how much the Study of Anatomy conduces not only to the right understanding of the Theory, but to the successful Practice of Medicine, than the Knowledge of *Peyer's* Glands. If we consult the Writings of the antient Physicians, we shall easily find, how erroneously, not to say absurdly, they imputed the Cause of the Coeliac Passion either to a cold and moist Distemperature, or to a Weakness of the retentive Faculty. But Anatomy has scatter'd these Mists, and, by distinctly explaining the Fabric of the Intestines, clearly shewn, that this Disease owes its Original to an Interception, at least in Part, of the Humour which used to be discharged from the Glands. Those Remedies, therefore, which gently irritate the Belly, and deterge the Mouths of the Glands, are found to have the greatest Efficacy in this Disease; and thus a more perfect Insight into the Nature of the Distemper leads us the nearest and readiest Way to the Cure. And as the Antients were defective in their Knowledge of the Disease, so they proceeded by wrong Methods in the Cure, which they carry'd on wholly by Astringents; for any one may see, that they embraced this Method, because it was agreeable and correspondent to that Opinion which made the Cause of the Disease to consist in a Sort of Atony, *ἀτονία*, or Imbecillity of the Intestines. But if we should carry on the Cure by such Means, and make use of none but astringent Medicines, as was the Practice of the Methodics, instead of deterring, we should more and more obstruct the Glands, and take the ready Way not to relieve the Patient, but to confirm the Disease.

But, to put an End to this Disquisition, we have now sufficiently explain'd by what Contrivance, and Laws of Nature, and for what Ends and Purposes, this glandular Secretion is perform'd. These Things, being well understood, will enable us to comprehend the Reason of what Lord Bacon very judiciously observed concerning Cathartics. "We confidently assert, he says, that frequent and repeated Purgations are of much greater Efficacy, towards lengthening out the human Life, than Exercise and Sweating. For it is very certain, that not only Humours, and excrementitious Vapours, but, together with them, good Juices and Spirits, which are not easily repair'd, are exhaled and dissipated by Sweat and Perspiration; whereas in Purges, unless they be immoderate, the Case is otherwise; for they operate principally upon the Humours." Thus he speaks, according to his Manner, as a Philosopher; but one, who accommodates the Ratiocinations of Anatomy to the Subject, will easily perceive, that the Use of Cathartics does not only open and cleanse the Mouths of the Lacteals, but free the Glands from gross Humours, with which they are frequently obstructed; so that they are preserved in a State of affording a constant and perpetual Supply of Lymph for the Preparation of the Chyle, on which all Nutrition, and Life itself, depend. By this means, therefore, Care is taken, during Health, not to consume what should be our Resource and Support under Sicknefs. *Freind Comment. in Hippocrat. Epidem.*

Hoffman thus gives his Sentiments, as to Cathartic Medicines.

As, among the several Classes of Medicines, none more effectually contribute to the Preservation of Health, and the Cure of Diseases, than what we commonly call Evacuants; so, among the several Species of Evacuants, none are of greater Importance than those which eliminate and discharge the excrementitious and peccant Matter, contain'd in the Body, by Stool. The Medicines of this Kind are either mild and gentle, or strong and drastic. Those which safely, mildly, and, without doing any Injury to the Stomach and nervous System, render the Body soluble, are call'd *Lenitive* or *Laxative Medicines*, which the *Greeks* call'd *Eccoproctics*. Those, on the contrary, which evacuate the Contents of the Intestines in a more efficacious and forcible manner, come under the Denomination of *Purgatives*. Of the former Kind, the principal are, among vegetable Substances, Manna, Rhubarb, Cassia, Agaric, Tamarinds, Sena-leaves, Aloes, Buckthorn-berries, Raisins, Polypody, Peach-flowers, those of the *Egyptian Thorn*; as also the Flowers and Seeds of Violets. Among Salts, common Salt, Borax, and Nitre; as also those obtain'd from medicinal Springs, such as those of *Epsom*, *Egra*, and *Sedlitz*, and the *Caroline Springs*. Among Substances supplied by the Animal Kingdom, Milk, especially that of Asles, Whey, and the *Saccharum Lactis*. Among chymical Preparations, the *Terra foliata Tartari*, vitriolated Tartar, Cream of Tartar, Salt prepar'd of Aluna and

Salt of Tartar, the essential Salt of Wood-forrel, the *Magnesia*, *Sal Polychrestum*, *Aurum Fulminans*, *Mercurius Dulcis*, Flowers of Benjamin; as also some compound Medicines, such as the *Pilulæ de Succino Cratonis*, the *Pilulæ Aleophanginæ*, the *Pilulæ Marocostinæ*, and the *Pilulæ Tartaræ Schrœderi*, the Essence, the Extract, and the Syrup of Rhubarb, the solutive Syrup of Roses, the laxative Water of *Vienna*, and *Thomson's* purging Elixir, besides many others.

These gentle Laxatives, without greatly disturbing or weakening the peristaltic Motion of the Stomach and Intestines, not only evacuate the Fœces, but, when exhibited in pretty large Doses, copiously discharge the Serum from the Glands of the Intestines. Nor, like the more drastic Purgatives, do they operate by an acrid subtile and caustic Salt, which proves noxious to the nervous Parts; but by an innocent and harmless Kind of Substance, which, however, is of a fine saline and stimulating Nature, and which, like that of Emetics and Purgatives, evaporates, and is lost, by long boiling, as is obvious from Manna, Rhubarb, Aloes, and Sena-leaves, which, for this very Reason, are more properly infused than prepared by Decoction. But these Laxatives act either by a certain saline, stimulating, but mild Principle, such as Manna, Cassia, Raisins, and Polypody, or by a certain subtile, sulphureous, bitterish, and earthy Salt, such as Aloes and Rhubarb, or by an acid Salt, which vellicates the Fibres, such as Tamarinds, Cream of Tartar, and Salt of Wood-forrel; or they act by means of a neutral Salt, such as Nitre, Borax, *Sal Gemmæ*, the *Digestivum Sylvii*, the *Arcanum Duplicatum*, vitriolated Tartar, Salts obtain'd from medicinal Waters, and the essential Salts of Herbs; or they operate by means of a certain calcarious and bitterish Salt, such as the Salts of *Sedlitz*, *Epsom*, and *Egra*; or, lastly, they act by means of a calcarious Earth, such as the *Magnesia*, which, being dissolved by the Acid of the *Primæ Viæ*, is converted into a neutral acrid and stimulating Salt.

PRACTICAL COROLLARIES.

These highly safe laxative Medicines, which are of singular and uncommon Use in the Cure of many Disorders, and, for that Reason, by some distinguish'd by the Epithet *Benedicta*, (blessed) were little known to the Antients, in whose Works we find not the least Mention of Aloes, Rhubarb, Tamarinds, Sena-leaves, and Agaric, but only of Cassia and Polypody, among the gentler Purgatives. *Dioscorides* was the first who wrote any thing concerning Rhubarb and Aloes; and, from him, *Pliny* and *Galen* took what they have deliver'd concerning these Medicines: But Manna, Tamarinds, and Sena-leaves, were first known to the *Arabian* and *Egyptian* Physicians. But tho' all Laxatives agree in this, that they render the Body soluble, without Danger, Violence, or Commotion; yet, in Practice, they ought necessarily to be distinguish'd according to the Differences of Diseases, and the various Constitutions of Patients. Manna, for Instance, Cassia, Raisins, and Polypody, are exhibited with singular Advantage in Disorders of the Breast, such as a Cough, a Spitting of Blood, a Pleurisy, and a Phthisis; as also in those Diseases which arise from a saline, acrid, and scorbutic Serum, such as Gouts, Rheumatisms, Itches, and Purple Eruptions. In these Cases the above-mention'd Medicines are preferable to others, because they not only discharge the intestinal Fœces, but, at the same time, allay and correct the saline Acrimony of the Fluids. Gentle Acids, such as Tamarinds, Cream of Tartar, Salt of Wood-forrel, as also the essential Salts obtain'd from nitrous Herbs, *Sal Polychrestum*, and antimoniated Nitre, are highly proper in hot Climates, and in the Summer-time, for Patients of choleric Habits; as also in Disorders arising from too large a Quantity of Bile, and those attended with a preternatural Heat; in continued, double, and Summer Tertians; as also in a *Causus*, attended with an insatiable Thirst. In these Cases the Medicines now-mention'd are preferable to others, not only on account of their evacuating Quality, but also because they check the intestine Motion of the sulphureous Parts of the Blood, and correct the exorbitant Acrimony of the Bile. In Disorders arising from a Defect of Bile, and the Want of a balsamic Sulphur in the Blood, such as Cachexies, and almost all chronical Disorders, which are attended with an Inspissation of the Juices, and an Infarction of the Viscera, bitter Laxatives, such as Preparations of Rhubarb, and of Aloes, duly corrected, are justly preferable to all other Medicines. But in Disorders arising from tough and viscid Humours lodged in the *Primæ Viæ*, and producing Want of Appetite, Distentions of the Hypochondria, Eructations, and Flatulencies, all neutral Salts, whether chymically prepar'd, or the native Salts of medicinal Springs, exhibited in a pretty large Dose, and with a sufficient Quantity of some proper Liquor, effectually render the Body soluble, and discharge the thick and viscid Recrements. When an Acid, as it generally happens in hypochondriac and melancholic Patients, as also those labouring under quartan Fevers, abounds in the Habit, and eludes the Force of the most acrid Purgatives, in this Case, besides Preparations of Manna, the *Magnesia* is singularly beneficial, which, as it is entirely dissolv'd by Spirit of Vitriol,

and

and passes into a neutral Salt of a bitterish Taste, and purgative Quality; so it assumes the same Virtue and Nature when it meets with an Acid in the Stomach. But, on the contrary, when a dissolvent Liquor is wanting in the Body, it operates little or none, and proves more hurtful than beneficial.

Aurum Fulminans and Mercurius Dulcis are, indeed, generally class'd among the Laxatives, but their Use is not altogether safe; for when Aurum Fulminans is thoroughlyedulcorated; its Operation is either very languid, or absolutely none at all. On the contrary, when it is richly impregnated with salino-nitrous Spiculæ, it indeed renders the Body soluble, because, in consequence of its Gravity, it strongly adheres to the Coats of the Stomach and Intestines; but, in delicate Patients, it excites violent Gripes, Flatulencies, and other troublesome Symptoms. Besides, it proves highly prejudicial, where there is a large Quantity of acido-corrosive Humours, or caustic Bile, lodg'd in the Stomach or Duodenum. *Mercurius Dulcis*, which alone, and without the Assistance of Purgatives, does not generally operate as a Purge, assumes, upon an Accession of corrosive Bile into the Duodenum, its original deleterious Quality, and proves prejudicial to the nervous System. And tho' this Medicine is almost universally recommended for expelling Worms, yet, as mercurial Preparations are highly hurtful to Children, and as I have observ'd violent Symptoms, and a considerable Weakness, produc'd by them, I would not, even with this Intention, have them exhibited, except with the utmost Caution, and in Conjunction with a proper Method and Regimen. Many, in order to heighten the purgative Quality of Aurum Fulminans, mix neutral Salts with it, such as the Arcanum Duplicatum, or vitriolated Tartar. Nor is it to be denied, that half a Dram of either of these Salts, triturated with two Grains of Aurum Fulminans, acquires a metalline Taste, and, by stimulating the Intestines, eliminates their Contents; but this Effect is rarely produc'd by it without Gripes. But we are, above all Things, to take care, that the *Mercurius Dulcis* be not triturated along with Salts, especially those of an alkaline Nature, or Sal-ammoniac, since by this Method of Preparation its corrosive Quality is again rous'd, by which it acts upon the glandular and nervous Systems, and often excites a troublesome Salivation.

All the Salts above enumerated, especially those of the neutral and bitterish Kind, when half an Ounce or an Ounce of them is exhibited for a Dose, in a sufficient Quantity of some proper Liquor, are possess'd of a singular Virtue in rendering the Body soluble, without any Commotion of the Blood, or Loss of the Appetite and Strength. And they may be at once more safely and efficaciously us'd than the drastic Purgatives obtain'd from the vegetable Kingdom; especially in Diseases and Constitutions where a large Quantity of thick and viscid Humours is lodg'd in the *primæ Viæ*, or in the Vessels. Hot and cold Medicinal Springs, generally call'd *Acidulæ*, and which are singularly efficacious, both for the Prevention and Cure of chronical and obstinate Disorders, derive their aperient, detensive, and purgative Qualities, from the aqueous, but much more from the saline Principle they contain.

Among Flowers of a laxative Quality, the most considerable are those of the *Egyptian Thorn*, Peaches, Violets, and Roses; but they ought to be recent, and to be only infus'd, but not prepar'd by way of Decoction. These are most advantageously exhibited with sweet Whey, or Asses Milk, especially in the Spring; and the Patient, especially when delicate and tender, ought every Morning, for some Weeks, to drink about half a Pint of such a medicated Draught, in order to purify his Blood; for both Whey and Asses Milk are possess'd of a certain laxative Quality, as *Celsus*, *Lib. 2. Cap. 12.* informs us in the following Words: "There are, says he, certain Diseases, in which purging by Milk is highly proper." And a little after he subjoins, "The Antients, after adding a little Salt to the Milk of Asses, Cows, or Goats, boil'd it, and, removing the coagulated Parts, ordered their Patients, in certain Cases, to drink the remaining Whey."

Laxative Preparations of Aloes, whether of the hepatic or succotrine Kind, are Medicines of uncommon Efficacy, if the Aloes is, by a proper Method, previously freed from its prejudicial sulphureous and volatile Principle, and from its Resin, which firmly adheres to the Coats of the Intestines. But even after these Precautions, the Dose must be small, and mix'd up with bitter Extracts, and mild balsamic Ingredients. For this Reason, the Pills perhaps accidentally invented by *Becher*, and upon his Model since prepar'd of more proper Powders, may be advantageously prescrib'd, not only with an Intention to render the Body gently soluble, but also in order to restore and corroborate the Tone of the Intestines, which, being weakened in many Diseases, is still more impair'd by the Use of drastic Purgatives. And tho' these Pills produce but faint and almost insensible Effects in Patients of robust Constitutions, and such as abound with Blood, yet their Operation is more speedy and considerable in Persons naturally delicate, or such as are weakened by the Shock of a Distemper; as also in Child-bed Women, or those whose monthly Evacuations are irregular

or obstructed. For Patients whose Digestion is weak, when recovering from any Disorder, they are also highly proper, for correcting and evacuating the crude Juices; as also for hypochondriac Persons, whose Stomachs continually throw up acid Crudities. On the contrary, Preparations of Aloes exhibited in large Doses, and without proper Correctors, throw the Blood into violent Commotions; for which Reason plethoric Patients, those of delicate Constitutions, and such as are subject to Evacuations of Blood, ought entirely to abstain from them, because, when preposterously exhibited, they are attended with this particular Disadvantage, that they excite very painful blind Hæmorrhoids, and drive the Blood to the Region of the Loins, and the Parts contained in the Pelvis. But among the several Pills in which Aloes is an Ingredient, in Conjunction with other proper Ingredients, besides those of *Becher*, the *Pilulæ Tartaræ Schrœderi*, the *Pilulæ Aleophanginæ*, the *Pilulæ Marocostinæ*, the *Pilulæ de Succino Cratonis*, and the *Pilulæ Solenandri*, are not to be robb'd of the Encomiums due to their Efficacies and Virtues.

But the Contents of the Intestines are evacuated in a far more efficacious and powerful manner, by what we call strong Purgatives. Of this Class, the most considerable are the Roots of black and white Mechoacan, of Jalap, black and white Hellebore, common Flower-de-luce, Bryony, and Esula. The Herbs, Soldanella, Gratiola, Purging-flax, Coloquintida, Purging Nuts, the Seeds of the Cataputia, Turbith, the middle Bark of Elder, Gamboge, wild Cucumber, and Scammony, together with the Shop-preparations of these; such as the *Trochisci Alhandal*, the Extracts of Coloquintida, and Esula, the *Panchymagogum Crollii*, sulphurated Diagrydium, the *Pulvis Cornachini*, and the Countess of *Warwick's Powder*.

The Principle by which these drastic Medicines operate, is of a highly virulent Nature, and the fine caustic and inflammatory Salt, which in a very small Dose attacks the nervous Membranes, not only of the Stomach and Intestines, but also of the whole Body, in the same manner Poison does, acts with Violence on these Membranes, and generally excites spasmodic Constrictions, an Uneasiness of the Præcordia, Cardialgias, and Gripes, accompanied with frequent Stools, Hiccups, Inflammations of the Stomach and Intestines, Coldness of the Extremities, and sometimes Convulsions; for that the Salt contain'd in these Purgatives is highly subtle and active, and diffuses its Virtue thro' the whole Mass of Humours, is sufficiently obvious from this, that a Child is purg'd by the Milk of the Nurse who has taken such a Purgative. And sometimes, by the external Application only of Purgatives, violent and formidable Fluxes have been brought on. Thus *Heurnius*, in *Comment. in Aph. Hippocratis*, informs us, that the Antients purged themselves by washing their Feet in a Decoction of Hellebore. *Walaus, de Meth. Medend.* informs us, that a Piece of Hellebore, us'd for cleansing an Issue, excited a Vomiting, and prov'd purgative. Any Ointment, in which Coloquintida is an Ingredient, laid upon the Navel, purges not only Children, but also Adults. But the caustic and inflammatory Nature of strong Cathartics is sufficiently obvious from this, that, when externally apply'd, they burn the Skin, and excite Blisters like a Vesicatory: The Juice of the Esula consumes Warts, and the Essence extract'd from drastic Purgatives, such as Jalap, Mechoacan, and Scammony when swallow'd, burns and corrodes the Fauces and Oesophagus, and excites hot Pustules and Aphthæ. And certainly the virulent and poisonous Quality of drastic Purgatives is sufficiently evinc'd by the Experiments of *Wepfer*, who, in his *Tract. de Cicuta aquatica*, informs us, that he gave various Purgatives in a certain Quantity to Whelps, immediately after which, Vomiting, Convulsions, and at last Death, ensued. Upon dissecting these Animals, the Stomach and small Intestines were found inflam'd, and mark'd with red Spots, just as if they had taken Arsenic: And what deserves our Attention is, that, according to the express Words of the Author, the same Phenomena are exhibited, and the same Effects produc'd, by the Resin of Jalap, so much us'd in our own Days.

Since, therefore, the Operation of the more acrid and drastic Cathartics is so violent, dangerous, and sometimes fatal, the prudent, rational, and cautious Physician ought scarce ever to prescribe them. 'Tis sufficiently confirmed by Experience, that in all Ages greater Havock, or more terrible Consequences, have not been produced by any Medicine, than by drastic Purgatives preposterously and unskillfully exhibited; and I myself, says *Hoffman*, who have practis'd Medicine forty-five Years and upwards, have observ'd numberless Instances of Patients, who, by the Use of drastic Purgatives alone, have either contracted incurable Disorders, or died. None of the Shop-preparations so quickly and powerfully impair the Strength, change the Pulse, injure the Stomach, or prejudice and disturb the natural Strength thereof, and the Intestines, as acrid and drastic Purgatives. I know several Patients, who, by a frequent and repeated Use of these, have brought on themselves Dropsies, hypochondriac Disorders, Inflammations of the Stomach, accompanied with Fevers which have prov'd mortal, Dysenteries,

a Cholera Morbus, and sometimes a Palsy of the Right or Left Side. The Antients, indeed, to whom the mild Laxatives, and the Use of the Salts, were in a great measure unknown, frequently prescrib'd these drastic Purgatives; and *Hippocrates* himself purg'd his Patients principally with *Elaeterium* and *Hellebore*: But if we carefully look into their Works, we find, that they did not exhibit these drastic Purgatives, except in Cases where the Danger of the Patient render'd them necessary; and, even then, they made their Patients drink Milk before and after the Exhibition of the *Elaeterium*, to the Virtues of which they attributed a great deal; and they corrected the *Hellebore* with an Admixture of Mulsim, Oil, or Milk. Besides, they did not promiscuously use these Medicines, but accurately distinguish'd in what Diseases they were proper, and in what not. And *Hippocrates*, especially in *Lib. de Purgantibus*, expressly discharges the Use of them in all Fevers and inflammatory Disorders. Besides, that the bad Consequences produc'd by drastic Purgatives, were not unknown to the most skilful of the antient Physicians, is sufficiently obvious, from the Precepts and Maxims every-where occurring in their Works. This is asserted in express Words, in the thirty-seventh Aphorism of the second Section, where we are told, that "those who are in a State of perfect Health, are speedily reduced to a deplorable Condition by being purg'd." And in the sixteenth Aphorism of the fourth Section, *Hippocrates* confirms the same Truth. *Hennius*, in his Attempt to demonstrate the Truth of this Aphorism, adds, "I have seen sound and healthy Persons, to whom a simple purgative Apozem of Punitory and Sena-leaves, rashly exhibited, has proved fatal." *Celsus* also, in *Lib. 1. Cap. 3.* informs us, that as Purgatives are sometimes necessary, so, when frequently used, they prove dangerous. And, in the twelfth Chapter of his second Book, he has these Words: "Purgatives generally hurt the Stomach, weaken the Patient, and are never properly prescrib'd, except in Disorders unaccompanied with a Fever." *Desbordes*, in *Lib. 4. Cap. 178.* declares himself of the same Sentiments, and affirms, that Purgatives are highly prejudicial and unfriendly to the Stomach. But *Campegius*, in a particular Book, has treated of the poisonous and hurtful Quality of Purgatives in a more full and circumstantiated manner, than any who went before him. *Helmont* also, and his Followers, as also *Bonteker*, did not scruple to call Purgatives mortal Poisons. *Montanus*, *Crato*, and *Solenander*, Men well acquainted with the healing Art, were much afraid of prescribing them; but frequently us'd Pills prepar'd of bitter Extracts, Gums, and Aloes. But the drastic Purgatives are in a particular manner hurtful and injurious to Patients of weak Constitutions, Children, and old Persons; to those who are recovering from a Disease, whose Stomachs are weak, or whose nervous Systems are subject to disorderly Motions. Nor is there any Medicine more prejudicial to Men of choleric and delicate Constitutions, after the uneasy Shocks of Grief and Sorrow, than drastic Purgatives, by the Use of which I have known several Patients cut off in consequence of an Inflammation of the Stomach, and a subsequent Cholera. They who are subject to hemorrhoidal Colics, hypochondriac and hysterical Spasms, ought also carefully to abstain from drastic Purgatives, unless they are in Love with Pain, and fond of Misery. This Species of Medicine is also highly prejudicial to Children, especially when struggling with the Pangs of a difficult Dentition.

But however terrible the Consequences to be dreaded from the Use of Purgatives are, yet as Poison, carefully and circumspectly exhibited, becomes a Medicine, as is obvious from Mercurials and antimonial Emetics, so there are also some, tho' very few, Cases, where strong and drastic Cathartics are properly prescrib'd: In that Species of Dropsy, for Instance, call'd Anasarca, especially when it does not arise from an Induration, or a scirrhus State of the Viscera and Glands, but from a sudden Stagnation of Water, in consequence of a Suppression of the menstrual or hamorrhoidal Discharges, or from too great Voracity in or after a Disease. I have seen a few Ounces of the Juice of common Flower-de-luce, as also Gamboge, *Elaeterium*, and Extract of *Esula*, successfully exhibited with half a Pint of Milk. The Dose may also be several times repeated, as the State of the Patient shall require; for, by this means, a surprising Quantity of Water is not only discharged by the Anus, but also, in Women, from the Uterus; and I remember two Instances, in which these drastic Purgatives evacuated only a small Quantity of Excrements, but excited a very copious and salutary Discharge of Urine; for hydropic Patients, in consequence of the relax'd and torpid State of the intestinal Fibres, are the better able to bear these drastic Purgatives; and these Fibres require a strong and powerful Stimulus to excite and restore their proper excretory Motions. These acrid and drastic Purgatives may also be properly prescrib'd in paralytic Relaxations of the Limbs, lethargic Disorders, and Cases where the languid State of the Patient requires an efficacious Medicine, as also in Madness; agreeably to which, *Celsus*, in the twelfth Chapter of his second Book, informs us, that "black Hellebore is properly exhibited to those who abound

"with black Bile, who are melancholy mad, or whose Nerves are, in any Part of the Body, become paralytic." I have also found from Experience, that violent Pains of the Os Ischium and Os Coccygis, which now-and-then affect the Thighs, have been reliev'd by drastic Purgatives, which, by procuring seven or eight brisk Stools, have remov'd that Load of bilious and ill-concocted Juices, which was the Cause of the Disorder.

Men of robust Constitutions, who live in the more Northerly Climates, and use Aliments which are coarse, and of hard Digestion, may, if Necessity requires it, have the drastic Purgatives exhibited to them; but the Dose must be very small, either in Powder, in Conjunction with Salts, such as Cream of Tartar, or vitriolated Tartar, with an Addition of a few Grains of diaphoretic Antimony. Or let the Extract of black Hellebore, the Trochisci Alhandal, Scammony, Resin of Jalap, or other Substances of a like Nature, be reduc'd into the Form of Pills, together with such Things as allay and correct their virulent Quality; such as Cinnibar, Vitriol of Mars, Saffron, Castor, Salt of Amber, Amber, and Myrrh, with which, if we mix a proper Dose of the Extractum Panchymagogum Crollii, which contains pretty acrid Purgatives, we have Pills which excellently answer the Intention, where a brisk and acrid Stimulus is requir'd. 'Tis, however, always to be remembered, that where a strong Evacuation is requir'd, 'tis far more proper to excite it by an increased Dose of the more gentle Purgatives, than to force it by those which are highly acrid and virulent. *Hoffman*.

Our Countryman *Quincy*, in his Pharmaceutical Lectures, lays down the following Rules relative to Cathartics.

It may be convenient to observe, with relation to Cathartics, that the grosser the Forms are, in which they are admitted into the Body, the stronger and quicker are their Operations; but the more they are divided and broke in their constituent Parts, by their respective Preparations, the further will they pass into the Body in the Course of Circulation, and be longer before their Operations are discernible. Thus Emetics, especially the saline ones, of which kind most in Practice now are, by a further Division and Comminution in Preparation, cease to be perceiv'd in the Stomach, or to operate by Vomit; but carry their Efficacies into the Intestines, and work by Stool: The same Procedure, still further continued, will pass them into the Blood, and intitle them to the Operation of Diuretics; and a yet further Progress in the same Management will convey many of them, especially those of the sulphureous Kind, into the minutest Vessels of the whole Body before they are perceived.

There is another Way of changing the Seat, wherein the same Medicine shall operate, by Mixtures which restrain its Efficacie in one Part, and leave it in its full Force to operate in others.

Of the saline Cathartics, besides those produc'd by some Processes of the Chymical Pharmacy, there are few, except Manna; and as there is nothing requir'd in the Management of that, but plain Solution in any aqueous Vehicle, we shall proceed to those Materials which require more Labour; and of these common Salt most naturally comes in our Way first.

The ordinary Production of this is sufficiently known: The Foundation of most of its Medicinal Preparations is a Spirit, which the Chymists make by various Ways; but the most material Circumstance in them all is previously drying the Salt by the Fire or Sun, and mixing it with three or four times its Quantity of some brittle earthy Substance, as broken Tobacco-pipes, Brick-dust, or the like; which facilitates the Separation of its Parts, and makes it rise easier by the Fire, which such heavy Materials are very unfit to do without these kind of Helps. But this being too corrosive, of itself, for a Medicine, it is dulcify'd with a Mixture of Spirit of Wine, which, at first, heats and ferments with it; whereby its Points are both broken smaller, and cover'd by those of the Spirit, so that it becomes a safe Medicine, and so far from stimulating too much in the first Passages, that it passes them unfelt, and, operating in the next Stage of Circulation, proves a Diuretic. The same Management thus far holds good with Nitre, Vitriol, and all like saline Substances.

But we have a noted Cathartic in the Shops, of which this is the Basis, under the Title of *Sal Glauberi*. *Lemery*, indeed, teaches to make it with Sal Ammoniac and Oil of Vitriol; but, as good Husbandry is allow'd to take Place, where a Medicine doth not suffer by it, our Chymists make a Spirit of Salt, by adding to it Oil of Vitriol, and drawing them over together; the Residuum of which, dissolv'd, filter'd, and duly evaporated, crystallizes into that Form wherein we meet with it in the Shops.

For like Intentions, there hath lately been contriv'd a Salt, from the mineral purging Waters, made also by Evaporation, Filtration, and Crystallization. It was first intitled *Sal Admirabile*, or *Sal Catharticum amarum*; but it is now so scandalously counterfeited, that it is little else than common Salt dissolv'd, and re-crystalliz'd.

Tartar affords a good many Medicines of different Intentions, according to its different Management in Preparation. The most in Use is the Cremor Tartari, which is made by dissolving it, as far as it is capable, in boiling Water; for, after Filtration, it will shoot into the Form we meet with in the Shops.

The Fitness of these for extemporaneous Forms is chiefly determin'd by the Quantities of them necessary for a Dose. Manna, *Sal Glauberi*, and the *Sal Catharticum amarum*, best suit a Dissolution in large Quantities of Liquor, to be taken down at several Draughts, as when People purge with the common mineral Waters; for, being dissolv'd in Liquor, little enough in Quantity to be taken at once, as in ordinary Draughts of about three Ounces, they will, when cool, shoot again into Crystals in the Phial: An Error frequently committed with Manna. Indeed, where only a Dram or two of these are added, in Conjunction with other Cathartics, in this manner, they will not only well enough admit of it, but are found also to quicken and facilitate the Operation of other things, especially if they be of the gummy or resinous Kind. Thus some observe the common Infusions with Sena, Rhubarb, and the like Materials, not only to operate better for a small Mixture of these Salts, but also that their Tinctures are, by their Assistance, much improv'd, in the same manner as from the fix'd Salt of Tartar.

In Boluses, Electuaries, or any Form where they rest long upon the Palate in passing down, they are very irksome, besides the inconvenient Bulk they occasion, when given in Quantity sufficient to answer any considerable End; tho', in some solutive Electuaries, they may be order'd, where a small Dose only at a time is requir'd; but the Cremor Tartari generally obtains in such Prescriptions.

But these Materials, likewise, are much better given in liquid Forms than in any other, and that too with large Quantities of Liquor, because their Intentions are very often to break away Obstructions which occasion colic and nephritic Pains; which, in most Cases, they more effectually do, by being plentifully diluted, especially when their Operation is desir'd in the remoter Passages, as by Urine; tho' very weak Stomachs are subject to throw all these Things up again, because of the nauseous Roughness they carry along with them.

In Glysters, design'd for quick Operation, these are very suitably added, because of the Stimulus they carry along with them; for which Reason Sugar, common Salt, or Sal Gemmæ, are sometimes order'd.

Too frequent Repetitions of the Medicines under this Distinction have been observ'd, in many Instances, to do Harm, by fouling the Glands, occasioning great Thirst, and sometimes Fevers of the worst Kind, beginning with Rigors, and other Appearances of Intermittents, but terminating in the most aggravated Symptoms; and on this Account too do they require large Dilution, and that with Gruel and Broths rather than thinner Liquors.

Those Cathartics come next in course, which are resinous; by which Distinction is meant such as yield their Medicinal Virtues only to spirituous Liquors, or, at least, are manag'd with such Liquors to the best Advantage.

That of most Note, which occurs under this Distinction, is Jalap, a due Attention to the Texture and Management of which will also inform us in what is necessary with others of similar Properties, as the Turpeth, Hermodactyls, and the like.

The most black, brittle, heavy, and shining Jalap, most abounds with Resin, and is therefore to be chose for this Process, which is order'd by infusing one Pound of the Root in three Pounds of Spirit for a Day or two, in a close Vessel; and, pouring that off, more Spirit is to be put on, as long as it will receive any Tincture; then exhale the several Portions together till a fourth Part only remains, to which put some common Water, and the Resin will fall to the Bottom.

The Conveniency of this Management consists in lessening the Bulk of a necessary Dose, a few Grains this way answering in Efficacy to a much larger Quantity of the Root itself; and this gives an Opportunity for that empirical Form call'd purging Sugar-plums, with others of a like Kind, where so small a Mixture of these Materials, as shall hardly alter Sugar, in Smell, Taste, or Colour, will be sufficient for a Purge to such as they are generally administer'd to, which are commonly young Children.

But all the Advantages of this Management with the resinous Drugs of greatest Value subject them to be most grievously adulterated by our Chymists and wholesale Dealers. The most common Trick with the Resin of Jalap is, mixing it with as much black Resin as they dare venture upon, without hazarding a Discovery by its Effect in the Operation. I have been told, that they put frequently two Parts of the latter to one of the former: But where there is Reason to suspect such Dealing, the Fraud may be discover'd by infusing it afresh in rectify'd Spirit, because that will again take up the genuine Resin of Jalap, but leave the other untouched.

Other Ways I have been inform'd of, whereby this is counterfeited without any Assistance from Jalap, as with an high Extract of a Malt Decoction, mix'd with Gamboge; but such a

VOL. II.

Mixture will soon discover itself in Water, by dissolving therein, which the genuine Resin will not do. There are, indeed, Resins within this Restriction, capable of being diluted with Spirit of Wine only, with which this, and other cathartic Resins may be adulterated, that cannot be detected by these Trials, as the *Resina Guaiaci*; but they generally come too dear to answer the Ends of Gain; and, if such Mixture should be suspected, it may be pretty easily known by the Taste; the *Resina Guaiaci*, or any other of the like Kind, occasioning a Heat upon the Palate, or giving some particular Relish of the Materials whence it is obtain'd, different from what is in the genuine Jalap. But our Medicine-merchants are not contented only with this Sophistication of the Resin, but also, when that is genuinely made, they dry the Residuum or Fæces of the Tincture, powder it, and, mixing it with a little fresh Root, sell it in the Shops for true Powder of Jalap.

But the Conveniencies of this Process with resinous Substances, which are purging, hardly balance the Inconveniencies from thence arising; because common Experience proves how much Cathartics of the like Texture do, by adhering to the Membranes and Fibres of the Stomach and Bowels, occasion most grievous Nauseousness, Gripings, and sometimes manifest Convulsions, which is the Reason, that, in extemporaneous Prescription, their Tenacity and adhesive Properties are generally prevented by a Mixture of Sugar, Salt of Tartar, or any other like Substances of opposite Textures.

When the resinous Parts, indeed of Cathartics are taken up by spirituous Liquors, and given without Precipitation in Tincture, as in the *Elixir Salutis*, *Tinctura Sacra*, *Rhabarbari*, or the like, they are not so liable to these Inconveniencies, but are diluted, and separated enough to pass only with gentle Irritations; and this way, likewise, they have the Advantages which were before taken notice of in the repeated Commutations of the saline Purgers, of being convey'd further into the Habit, and answering Purposes of Moment, which can be no ways effected by Operation only in the first Passages: So that by almost the same Contrivance as a saline Cathartic is chang'd into a Diuretic, is a resinous Cathartic chang'd into a Sudorific; the former, by a further Comminution, being fitted, by its Weight, to pass away by Urine, as the other, upon like Changes, is dispos'd, from its Levity, to go off with the higher Secretions, and pass, in a great measure, thro' the cutaneous Pores. The Intention, therefore, very much directs the manner of Preparation: Where the first Passages want cleansing chiefly, and an End can be obtain'd by stirring up uncommon Commotions in them, the more gross and undivided the resinous Cathartics are administer'd, the more certainly will they answer; but when the Seat of a Disorder is more remote, and the Efficacy of a Medicine is there wanted, these will sooner answer in spirituous Vehicles, and under such Management as divides and dilutes their constituent Parts.

The most material Circumstance in Practice with resinous Cathartics in Tincture is, that they be given only to Persons who can dispense with the Strength of the Vehicle, which then need not be diluted with any thing aqueous, unless just at the time of Exhibition; because the Parts wherein the chief Virtues consist will precipitate, and be lost by remaining at the Bottom, or come so undivided into the Stomach, as to give all the Disturbances before-mention'd concerning the grosser Resins unprepared.

As to the ordinary Contrivance of giving resinous Substances with Salt of Tartar, Sugar, or Things of a brittle Texture, to divide and separate their Parts, it very naturally returns us to the Examination of these Drugs, before their Resins are drawn out, and to consider them in Mixture with those other Principles with which they are naturally blended.

From the Experiments made upon Jalap by Mons. *Bolduc*, it appears, that after its resinous Parts are taken out by Spirit, it yields an Extract with Water, which proves purgative, but in a much lower Degree, and carries also its Efficacies far enough to operate by Urine. This demonstrates, that in this Drug, besides its Resin, is contain'd an earthy Salt; and that qualifying and correcting its Resin with Sugar, Tartar, or the like, is but bringing it back again, as far as possible, to the Condition in which Nature first afforded it; and the same Mons. *Bolduc* tells us, that a large Experience had convinc'd him, that the natural Root is a better Purger than any of its Preparations. From the Whole, however, we may conclude with some Certainty, that the resinous Parts operate with the most Strength and Roughness, and chiefly spend their Force in the first and larger Passages; and that the saline and more earthy Parts, which are dissolvable only in aqueous Vehicles, carry into the Bowels only some gentle Irritations, and pass further into the Habit, before their Efficacies disappear. And this is sufficient to direct us in the Management of this Drug, whether by Tincture with Spirit, by Infusion with Water, in its Resin, or in Substance, according as the Intention requires its rougher or gentler Operation, in the first or more remote Passages.

The same is a Rule to us with all other Cathartics of like Principles and Texture; but, in Rhubarb, this Difference is

remarkable in the Root itself without any Preparation: That which is bright, light of Texture, most fragrant, and sound, contains less Sulphur, or Resin, in proportion to its earthy and saline Parts, than that which is heavy, tenacious, and fetid; and, therefore, we find it milder in its Operation, more grateful to the Stomach, and better to answer the Intentions of an Astringent, a Diuretic, or an Alterant; and the other more to nauseate the Stomach, and to operate more strongly as a Purge in the first Passages: But this is more notorious in its Preparations by Tincture or Infusion. The latter, which takes out principally its saline and earthy Parts, operates much gentler, and with much less Nauseousness and Gripings, than the former; as every one may experience with the common extemporaneous Infusions of it, and its Tincture, which is made with a spirituous Liquor, and kept in the Shops.

But it being before observ'd of some Resins, that the more spirituous the Liquors in which they are dissolv'd, the better and gentler do they go through the first Passages, and carry their Operation into remote Parts, it may be necessary to take notice, that the Substances commonly passing under this Denomination are of different Degrees of Subtlety; so that, altho' all of them are dissolvable in Spirit, yet some of them are so gross in their own constituent Parts, or so intimately blended with somewhat viscid and tenacious, that they will not admit of equal Degrees of Comminution and Division by such Solution. The most subtle, therefore, only, and the most pure, are capable of the first assign'd Effect, and the more gross of the latter. And this Difference is both remarkable in the Things themselves, and in their Tinctures: The first are from Substances hard and brittle, whence the Tinctures are bright and transparent; whereas the latter are from Materials that are yielding and glutinous, giving Tinctures that are more thick, turbid, and commonly fetid. The Textures of Jalap and Rhubarb, as well as their respective Tinctures, very remarkably justify this Distinction.

And this brings us to a Class of Simples which is not strictly of the resinous or saline Kind, but wherein those two Principles seem to be so blended, that neither of them can conveniently be separated pure by any Menstruum, but require rather a Management whereby both are retain'd, and the gross, drossy, and useless Parts only are rejected; and these commonly come under the Denomination of Gums, or inspissated Juices.

Amongst the Cathartics of this Texture the Gamboge is most remarkable; and with this the Author before-mention'd hath made several Experiments, tending chiefly to shew, that this Gum doth not, of itself, properly dissolve in Water, but flows with it only into a kind of milky Substance; that its most resinous Parts may be taken up by Spirit of Wine, which he found to operate more roughly than the Gamboge itself; and that the Residuum, after such a Tincture, would give something saline to Water, which, being exhaled to an Extract, was little, or not at all, purgative by Stool, but prov'd diuretic. The Intention, therefore, is principally to direct the manner of Preparation with this Drug; though, indeed, it is seldom given in any other manner than is prescrib'd in the Composition of the Pills bearing its Name in the *New Dispensatory* of the College, or by itself, divided only with Salt of Tartar, and corrected with a small Quantity of some of the aromatic or carminative essential Oils; but its grievous Roughness, and Violence of Operation, make it seldom prescrib'd, but to robust Constitutions, and in obstinate Cases.

Scammony, in like manner, will flow considerably with Water into a milky Fluid; but the much greater Part of it is taken up by Spirit of Wine, which being again precipitated with Water, like the Resin of Jalap, is intitled in the Shops *Resin of Scammony*. It is subject to the like Adulterations with Resin of Jalap, which are discoverable also by the same Means. What hath been observ'd, likewise, in regard to the Exhibition and Operation of that, is applicable to this; but there is somewhat so peculiarly adhesive in the Scammony itself, that it is not reducible to Powder without first rubbing the Mortar with a small Portion of Oil, and continuing to do so as often as it begins to adhere to it. And to this same Property, without doubt, is owing its Roughness of Operation, as was before observ'd, of others of like Texture and Disposition.

Aloe comes under the like Notice, both in Preparation and Use, from a Similitude in Properties. The coarser Sort, commonly call'd Hepatic or *Barbadoes Aloe*, is most of the gummy Kind, and very fetid and adhesive, which makes it loathsome to the Stomach, and occasions it to operate with great Roughness and Gripings; but the succotrine Aloe, which is more brittle, fine, sweet, and dissolvable in Spirit, works with Gentleness in the first Passages, and may be extended in its Operations, by Means already-mention'd, to the most remote Stages of Circulation.

Thus much may be sufficient to observe in general, with relation to the Simples of this Division, as they are distinguish'd into saline and resinous, and the particular Management due to them as such, with the particular Advantages or Disadvantages thence arising in their Operations. As to those of a mix'd

Kind, where their Principles are not easily separated, or answer no Intention in Separation so well as in Conjunction, but yet require some Preparation, to clear them of any drossy or useless Parts, the best Way seems to be to dissolve and make Extracts from them, both with spirituous and aqueous Vehicles, and afterwards mixing those Extracts together; for this not only preserves the Medicinal Virtues of the Whole, but, as far as the saline Parts moderate the Operations of the resinous, it also preserves the best and most natural Correctors such Materials can admit of.

In the Colocynth, which is a principal Ingredient in many of the officinal Cathartics, there seems, by *Monf. Bolduc's* Account, to be a pungent Salt, wrapt up in a few resinous or gummy Parts; and, by the Experiments he made with the Extracts by spirituous and aqueous Liquors, it appears, that the saline Extracts operate with less Violence than the resinous, as has been already observ'd of most purging Simples. But the saline Parts in this Drug seem to have a more than ordinary Subtlety, as well as Pungency, so that, when separated, they have Efficacy enough to operate, as soon as ever they come into the Body, and will not, as was before observ'd of the saline Parts of other Cathartics, go thro' the first Passages unfelt, and carry their Operations into the next Stage of Circulation, and prove diuretic.

But notwithstanding the Subtlety or Volatility of this Salt, and that which is extremely bitter in the Colocynth, yet nothing purgative or bitter will pass from it over the Helm, so that there must have been some Error in those Experiments, which *Monf. Bolduc* produces to prove the contrary.

The Roughness and Gripings with which this Drug, by itself, operates, hath been the Occasion of many Contrivances to mitigate its Efficacies; but the *Trochisci Albandal* is the only one that concerns our Practice; and, in this, it is loaded only with mucilaginous Gums, whereby its Irritations are made less sensible to the Coats of the Vessels: But even this Preparation is so little in Esteem, that it is hardly ever prescrib'd in Practice; so that into most or all the officinal Compositions, where it is concern'd, it enters only as Nature hath produc'd it; and, in that manner, the Pulp only is directed, on a Supposition, that its purgative Faculties reside only in that; tho' some are of Opinion, that the Seeds are also purgative, and that some greater Portion of Oil contain'd in them proves a Corrector to the saline Parts, and makes the Whole operate gentler. But, be this as it will, those who study Profit in their Compositions, more than the Good intended to be done with them, make no Scruple of using Pulp and Seeds together, and even the latter for the former.

Agaric seems to be much of the same Texture with the Colocynth, and to contain some Portions of a stimulating Salt, in a spongy, gummy, or viscid Substance, tho' in a much less Degree than the other, it being able to do little else, than to give a Loathing and Sickness to the Stomach: However, the officinal Dispensatories, and even that of our College, give a Form of Troches and Pills wherein it is the chief Ingredient, and from whence they have their Titles; but neither are in Esteem enough ever to be made, or ask'd for.

The Cataputia and Elaterium contain a very pungent caustic Salt, which makes their Operations extremely hazardous, inasmuch that they are seldom met with but in the Hands of Empirics, or in Cases of great Danger and Obstinacy. The Euphorbium also, which exceeds in the same Qualities, is now quite rejected in all internal Use.

The Myrobalans, which make a Part of this Division, seem to owe their Medicinal Virtues to a small Portion of the saline Principle; as do likewise the Tamarinds, Cassia, and other Fruits of the like Kind; but they are too weak in their Efficacies to be depended on in Cases of Moment, and are, therefore, only made use of as Auxiliaries to others of more vigorous Operations, except only where common Lenitives are requir'd.

The black Hellebore, by *Monf. Bolduc's* Experiments, yields a great deal of a saline Extract with Water, which proves only diuretic; and but very little to a spirituous Menstruum, which is resinous, and proves cathartic: All which sufficiently demonstrates, that the Intention of the Prescriber ought to determine its particular Management; and that, as it is generally design'd for a Deobstruent, and to operate much further than in the first Passages, it ought to be open'd by a Menstruum that will not fail of taking up its saline Parts: A rectify'd Spirit, therefore, is too high for this Purpose, and one ought to be chosen of a middle Nature, as a strong Wine, or a low Spirit, which will unite with both its resinous and saline Parts. For an Extract, indeed, a double Process, as before-mention'd, with Spirit and Water, and then mixing them together, is best; but as for Tincture, such a Mixture would grow turbid, and precipitate; and, therefore, the Virtue is much better drawn out at once with a middle Menstruum between these Extremes.

As for what concerns the extemporaneous Prescription of these Materials, there is little or no Difficulty, because most of them are in such officinal Forms as serve to answer the general Intentions

tions of Cathartics, which require no other Care in Prescription, but to adjust the Doses necessary for every Exigence and Constitution.

All the stronger Cathartics are best suited to be given in Pills, not only on account of their Nauseousness, both to Smell and Taste, in any other Forms, which is best concealed in this; but also because thus they gradually unfold themselves to the Stomach, and are not so subject to be thrown up again by Vomit. Some of them, indeed, succeed well enough in Tincture, as was before observed, concerning the Materials which compose the *Elixir Salutis*, *Elixir Proprietatis*, *Tinctura Sacra*, and the like; but all the Cathartics of a lax Texture, and whose Dose in Substance exceeds the ordinary Bulk of a Bolus or Pills, as Flowers, Herbs, and some Roots, are most conveniently ordered by way of Infusion, as in the common Infusions of Sena, Rhubarb, &c. and of these Infusions some may be made strong enough to admit of boiling into a Syrup, with a proper Quantity of Sugar, without exceeding a convenient Measure for a Dose; as the *Syrupus de Cichoreo cum Rhabarbaro*, *Syrupus de Rhabarbaro simplex*, and the like; but these are not much esteemed, unless for Children, to whom their Sweetness is some Inducement to take them. Some cathartic Syrups are likewise made from the expressed Juices of some of this Class, as the *Syrupus de Spina Cervina*, and *Syrupus à Succo Rosarum Damascenarum*; but only these two, which are thus made, are of any Esteem.

There are some officinal Electuaries, of which the Materials of this Distinction are the Basis; but the extreme Bitterness or Nauseousness of most of them either renders them very unsuitable in this Form, or their Doses cannot be duly adjusted; so that they are seldom trusted to, in this manner, especially those of most Efficacy in Operation; altho', indeed, lenitive Compositions, where there is no great Exactness of a Dose required, may be thus well enough ordered. Where, therefore, this Form is most eligible for taking, the Proportion for a Bolus of one Dose only is much the safest to trust to.

There are some officinal compound Powders from this Class, but few of them are of any great Esteem, both on account of their being liable to decay in this Form, and their Inconvenience for taking; their sufficient Doses in Draughts being very unsightly and troublesome, or in a Bolus of too large a Bulk, to get down at once, unless it be some of the stronger Sort, as the *Pulvis Cornachini*, or *Pulvis Comitissæ Warvicensis*; but neither of these will suit with Draughts, because their purgative Ingredients being resinous, they are subject to run into Lumps, which are not easily separable in an aqueous Vehicle, or by the Force of the Stomach itself.

Resins, then, are to be extracted in the way of Tincture, with a high Menstruum, and precipitated by Water; they are greatly capable of Sophistication. Resinous purgative Substances, exhibited without a Division of their Particles by some other Body, greatly adhere to the Intestines, and occasion violent Gripings; and therefore the most pure and subtle succeed best in Tincture made with Spirit, where a Person can dispense with the Strength of the Vehicle. Where the saline and resinous Principles are united, their Virtues are best obtain'd in an Extract made both with a spirituous and aqueous Menstruum. The strong Cathartics are best given in Pills. *Quincy's Practitiones Pharmac. Sect. 3. and 4.*

With respect to purging in acute Diseases, it has been much controverted by Physicians, whether the Exhibition of Cathartics is salutary or otherwise. Those who maintain the latter are terrified with chimerical Apprehensions, lest the Humours should be drawn, as they express it, from the Circumference of the Body to the Centre; and farther insist upon it, that Purging decreases Perspiration, which they imagine the only proper Evacuation by which the Distemper ought to be carried off. That Perspiration is decreas'd by the Operation of a drastic Purge, is confirm'd by some Passages in *Sanctorius*, which it is not my present Business to examine, as it seems of but very little Importance whether Perspiration is decreas'd or not, or whether the Humours are in the Circumference or Centre, provided Purging contributes to the Cure of the Distemper more effectually than any other Evacuation. I have been more than once surpris'd with Reasonings of this Kind, from People who have spoken well of *Sydenham*, and his Practice; and who had read his Works, to however little Purpose.

Whoever examines the Cases which occur in Medicinal Writers, from the Time of *Hippocrates* to this Day, representing the spontaneous Termination of acute Diseases, will find more of these carry'd off by plentiful Stools, than any other Way, except by critical Sweats. And this may insinuate, that when the vital Powers fail of relieving the Patient this way, an artificial Evacuation of the same Kind may frequently prove salutary.

Dr. *Freind*, in his seventh Commentary on the Epidemics of *Hippocrates*, tells us, that the Doctrine of Purging in Fevers is so abstruse, and beset with so many Difficulties, that he declines laying down Rules relative thereto. I believe, however, that many Physicians of the most distinguish'd Character will agree with me in one Rule, which is, that Purging, either in a greater

or a smaller Degree, can never be improper in those Fevers which are usually epidemic or intercurrent in our Climate, provided Stools are wanting, and Bleeding has preceded; for nothing is more strongly insisted on by *Hippocrates* and *Sydenham*, than the Necessity of Bleeding previous to the Exhibition of a Cathartic or Emetic.

It must be confess'd, that with respect to Cathartics in Fevers, much must be depended upon the Judgment of the Physician; for a Medicine is like a Pencil, which, in the Hands of an Artist, almost rivals the Works of Nature; but when directed by the Unskilful, does Mischief by every Attempt to mend.

Purges in Fevers are exhibited either in full Doses, in the Beginning, in order to put an End to the Disorder at once, and carry it off by the Evacuations they cause; or they are given in minute Doses, one Fourth perhaps of the usual Quantity, with a View of cooling, and moderating the Symptoms, keeping the Primæ Viæ clean, relaxing the Solids, and even of promoting the cutaneous Discharges, which last Effect they will frequently produce. But in both Cases the more lenient Cathartics only are to be used, because the more drastic are so far from answering the salutary End propos'd, that they do infinite Prejudice.

The Practice of *Sydenham*, which he recommends in his *Schedula Monitoria*, is an Evidence of the Efficacy of Cathartics exhibited in full Doses, for the Cure of the Fever he there describes; and he seems to regret his Neglect of them in other Fevers. That this may appear in its full Light, I shall transcribe his Description of this Fever, and the Method of Cure, which with him was attended with Success.

This Fever, from the justest Observation I could make, was generally accompanied with these Symptoms. Intervals of Heat and Cold succeeding each other, and frequently a Pain in the Head and Limbs; a Pulse not much unlike that of a healthy Person; the Blood taken away, commonly resembling pleuritic Blood; a Cough generally, which, with the other Concomitants of a mild Peripneumony, goes off so much the sooner, as the Disease comes on at the greater Distance from Winter; sometimes a Pain in the Neck and Throat in the Beginning of the Illness, but not so violent a one as in the Quinsey; tho' the Fever be continual, yet it often increases towards Night, as if it were a double Tertian or Quotidian; lying always in Bed, tho' with few Clothes on, is dangerous; for the Fever being thereby translated to the Brain, a Coma or Phrenitis soon succeeds. And, to speak the Truth, there is so great a Tendency to a Phrenitis here, that it frequently comes on spontaneously on a sudden, without any such Occasion, but rises not to such a Height as it does in the Small-pox, and other Fevers, the Patient being rather quietly than furiously delirious, and talking wildly between whiles. Petechiæ frequently appear, occasioned by an unseasonable Use of Cordials, and a hot Regimen; and young Persons, of a warm Constitution, are seiz'd with purple Spots, which are certain Signs of a considerable Inflammation, both in this, and all other Kinds of acute Diseases; and sometimes such Spots as are term'd miliary Eruptions, come out all over the Surface of the Body, appearing much like the Measles, only they are redder; and, when they go off, do not leave branny Scales behind them, as in that Disease. Tho' these Eruptions sometimes come out spontaneously, yet they are frequently driven out by the Warmth of the Bed, and by Cordials. The Tongue is either moist or dry, according to the Regimen which hath been used; when dry, it is brown in the Middle, and white round the Edges; but, when moist, it is white and foul. Sweat, likewise, depends upon the Regimen; for if that be over-heating, it is in a manner viscous, especially about the Head; and tho' it flows plentifully and universally, affords little Relief; whence it follows, that such Sweats are only symptomatical, not critical. The raising a Sweat by Medicines in the Beginning of the Distemper, ordinarily translated the morbid Matter, if not to the Head, at least to the Limbs. But when the Fever has seized the Head, and the Phrenitis prevailed, the feverish Signs vanish; only the Pulse beats sometimes quick, and sometimes slow; at length, however, when the Spirits are exceedingly hurried by wrong Management, the Pulse becomes unequal, with Startings of the Tendons, and Death soon follows.

In order to the Cure, I first direct ten Ounces of Blood to be taken away from the Arm; and in Effect, tho' the Blood in this Fever generally resembles pleuritic Blood, yet it does not well bear repeated Bleeding. But if a difficult Respiration, a violent Pain in the Head in Coughing, and other Symptoms of this Kind, shew the Tendency of this Disease to a bastard Peripneumony, Bleeding and Purging are to be repeated, till the Symptoms entirely disappear, as we have elsewhere hinted.

In the Evening I lay a Blister between the Shoulders, and next Morning exhibit this lenitive Cathartic.

Take of Tamarinds, half an Ounce; the Leaves of Sena, two Drams; Rhubarb, a Dram and an half: Boil them together in a sufficient Quantity of Spring-water to three Ounces; in the strained Liquor dissolve Manna, and solutive

five Syrup of Roses, each an Ounce: Mix all together for a Draught, to be taken early in the Morning.

I order this Draught to be given three times, interposing a Day between each Purgation; and the following, or a like Opiate, to be given at Bed-time, after the Operation.

Take of the distil'd Water of Cowslips, two Ounces; Syrup of white Poppies, an Ounce; fresh Lemon-juice, two Spoonfuls: Mix the Whole for a Draught.

This I do to prevent a Coma's coming on, from the Disturbance of the Spirits, which Purging often occasions, by the Tumult it raises in the Blood and Juices of Persons in Fevers; which Symptom yields to Opiates, tho' they seem to promote it. For this Reason, as I durst not venture to give a Purge in the comatous Fever of 1673. I persisted in the Use of Clysters, being fully convinc'd that Purgatives did then immediately cause a Coma, which might, perhaps, have been prevented, if I had thought of administering an Opiate after the Operation of a Cathartic.

But on the intermediate Days of Purging, an Opiate must not be given at Bed-time, for fear of checking, or entirely stopping, the Operation of the Purgative to be taken the next Day, which usually happens, though it be given late. It is a Rule with me, in this or any other epidemic Fever, to forbear Purging in the Beginning or State of the Disease, unless Bleeding hath been previously used, a Neglect of which hath been of fatal Consequence to abundance of Persons, especially to Children, as I have elsewhere observed by way of Caution.

It must, nevertheless, be remark'd, that tho' the above-mentioned Evacuations ought in general to be used, in the Cure of this Fever; yet young Persons, or especially Children, frequently recover after being blooded and purged once; and require no more Purging, the Fever being conquer'd by the first Cathartic; whereas, on the contrary, it is sometimes necessary to purge oftener than we have intimated above: For it happens, tho' not frequently, that the Patient relapses in a few Days, after recovering by this Method, on account of a fresh Supply of febrile Matter; which, however, is soon carried off, by repeating the Purgative a fourth time. But a Return of this Fever, when it is treated by this Method, seldom happens, unless it be caused by Aphthæ, succeeding the former Fever, now come to their Height; which Fever is, in reality, only symptomatic, and often accompanied with Hiccups at Intervals, which continue also some Days after the Fever is gone off; and, at least, ceases spontaneously, as the Patient recovers Strength; which is well worth Notice, inasmuch as the Hiccup, happening at the Declension of this Fever, is no way dangerous, unless several Medicines be over-officiously, and without any Necessity, administer'd; in which Case it proves fatal. But both the Aphthæ and Hiccup, or either of them, if they do not go off spontaneously, but prove obstinate, readily yield to the Bark; an Ounce of it being made into an Electuary or Pills, with a sufficient Quantity of the Syrup of red Poppies, and taken at proper Intervals, drinking a Draught of Whey after every Dose. I have found this the surest Medicine in this Case, provided it be not rendered ineffectual by the Patient's keeping his Bed, which too often happens.

On the intermediate Days of Purging, I sometimes prescribe the following, or the like Remedies.

Take of the Conserve of Wood-forrel, and of Hips, each an Ounce; Conserve of Barberries, half an Ounce; Cream of Tartar, a Dram; Syrup of Lemons, enough to make them into an Electuary: Of which the Quantity of a Nutmeg is to be taken thrice a Day, with six Spoonfuls of the following Julap after each Dose.

Take of the distil'd Waters of Purslain, Lettuce, and Cowslips, each three Ounces; Syrup of Lemons, an Ounce and an half; Syrup of Violets, an Ounce: Mix the Whole together for a Julap: Or,

Take of Spring-water, a Pint; the distil'd Water of Roses, Lemon-juice, and fine Sugar, each four Ounces: Let them be despumated over a gentle Fire. Let three Ounces of it be taken at Pleasure.

I add no Spirit of Vitriol to any of these Medicines, tho' it is very cooling, by reason of its remarkable Stypticity; whence it is improper in all Diseases requiring to be cured by Purgatives, to say nothing here of the mineral Nature of this Spirit.

It frequently happens, especially in the Declension of this Fever, that the Patient, when treated in this manner, sweats now-and-then spontaneously, in the Night, which greatly abates all the Symptoms; but notwithstanding, as such Sweats are not to be depended upon, the above-mentioned Method must by no means be discontinued, because, if those Sweats should be promoted longer, the Fever, which had been in some measure

check'd by the preceding Purgatives, will increase again. For, if the Sweat be prolonged beyond that Space of Time, wherein the febrile Matter, prepared by due Concoction, is entirely carried off, the following Sweats will do nothing but raise a fresh Inflammation. Hence, tho' these Sweats, which flowed spontaneously, might, perhaps, be critical, with respect to the Expulsion of the febrile Matter, fitted to be carried off, yet the subsequent Sweats may be only symptomatic, and so do more Mischief than Good. In short, the gentle Warmth of the Bed in the Night fortunately favours the Sweat which flows spontaneously at that time; and, for this Reason, the Patient should have no more nor thicker Clothes laid on him, than he usually had when in Health; he should forbear all heating Medicines, lie later than ordinary the next Morning, and afterwards pursue the Methods of Cure above delivered.

The Diet, in this Case, should be Water-gruel or Barley-water, and now-and-then a roasted Apple upon Occasion; and after the second Purge, weak Chicken-broth. I order Small-beer to be drank cold for common Drink; and the White Decoction, made by boiling an Ounce of burnt Hartshorn in three Pints of Spring-water, afterwards straining off the Liquor, and sweetening it with fine Sugar.

I have elsewhere observed, that when the Patient hath been twice purged, there is no Necessity to restrain him from eating Chickens, and the like Food of easy Digestion; this Indulgence being allowable on account of Purging, which otherwise could not be granted. Again, after the last Purge, provided the Fever be somewhat abated, and not yet entirely degenerated into an intermittent Fever, three or four Spoonfuls of Canary may be given every Morning, and after Dinner, and again in the Evening, for some Days; which may promote the Recovery of the Patient's Strength, and prevent the Fever Fits.

As this Kind of Fever is more subject to seize the Head than any I ever yet saw, and cannot be removed without great Difficulty and Danger, I advise my Patients to lie without their Clothes only in the Night; but if they are so much debilitated by the Disease, that they cannot sit upright, I allow them to lie down upon the Bed, or a Couch, with their Clothes on, and the Head a little high; neither do I suffer a greater Fire to be kept in the Room, than they were used to whilst in Health.

This Regimen is not only to be strictly pursu'd from the Beginning, in all that have this Fever, except in Women seiz'd with it a few Days after Delivery, but must be indispensably injoined, when the Patient is attacked with a Phrenitis, Petechiæ, purple Spots, or any other Sign of a violent Inflammation occasioned by an over-heating Regimen. For, in this Case, neither Bleeding, nor covering the Patient thinly in Bed, nor the Use of any Kind of cooling Liquors, will remove the Fever, without sitting up in the Day-time; inasmuch as the Heat of the surrounding Air, included in the Bed by the Coverings, puts the Blood into an excessive Motion, and the supine Posture of the Body hurries it violently to the Head. But in this Fever, when a Phrenitis comes on from ill Management, it cannot be removed immediately; neither is it safe to attempt the Cure by repeated Bleeding and Purging, beyond the Limits prescribed; whereas it will at length go off at its own time, and spontaneously, by means of the above-mentioned Method. Nothing, however, promotes the Removal of this Symptom more than shaving the Head; and therefore I always order it, without applying a Plaster, but only a Cap thick enough to supply the Loss of the Hair, or at least to keep the Head warm. By this means the Brain is greatly cool'd and refresh'd, so as by degrees to be able to overcome the Heat occasioning the Phrenitis.

What hath been said of the Phrenitis is also applicable to the Coma succeeding this Fever; in which the febrile Matter, as it happens in that Disorder, is translated to the Head, whence, except the Whiteness of the Tongue, no Signs of a Fever appear, so that the Patient seems perfectly free therefrom. In this Disorder, therefore, as well as in the former, the Use of Purgatives, Sudorifics, Blisters, and the like Remedies, instead of proving effectual, do much Hurt; for such Evacuations oftener kill than cure here. Having, therefore, previously used the general Evacuations of Bleeding and Purging, the Cure of this Disorder, tho' it may terrify the Attendants, is to be trusted to Nature and Time. For tho' the Patient should be afflicted with a Stupor for some Days, he will, nevertheless, at length recover his Health, provided he be not constantly kept in Bed, but is suffered to rise in the Day-time, and lie down on the Bed, or a Couch, with his Clothes on. In the mean time, however, it is proper to shave the Head; and, towards the Declension of the Distemper, to give three or four Spoonfuls of Canary twice a Day.

The Physician must not be discourag'd from making the above-specified Evacuations, tho' upon feeling the Pulse, he should perceive a Stating, and a convulsive Motion of the Body, because both Bleeding and repeating Purging are absolutely required, and do Service in some nervous Diseases.

It sometimes happens in Women subject to hysterical Complaints, when the Cure hath been attempted by the Evacuations above

above specified, that the Fever continues even after Bleeding and repeated Purging. And in this Case its Continuance is manifestly owing to the Disturbance of the Spirits, occasioned by the Evacuations; and, consequently, if there be no Signs of a Peripneumony or Inflammation about the vital Parts, the curative Indications are only to be level'd at quieting the tumultuary Motion of the Spirits; for which Purpose a sufficiently powerful Opiate must be given every Night, and hysteric Medicines taken twice or thrice a Day. Of this Kind are Pills made of Galbanum, Asa foetida, Castor, and similar Ingredients, and Julaps of the same Nature. Furthermore, to recruit the Strength, and suppress the Vapours, it is necessary to allow such Food, both of the solid and liquid Kind, as is most palatable.

We have already observed, that this Fever, in the preceding, but especially in the current Year, increas'd every Day towards Night, when a Fit came on like that of an Intermittent. The Physicians, therefore, who had learnt from Experience, that all such Fevers as did in the least intermit, and those frequently which did not, throughout the Course of Years, from 1677. to the Beginning of the Year 1685. certainly yielded to the Peruvian Bark, failed not to treat this Fever with the same Medicine. But however rational this Procedure was, it nevertheless did not ordinarily succeed so well as in the foregoing Years: For, having made the strictest Search I could into this Matter, I found, that tho' the Bark was given in great Plenty, yet it so seldom cured the Distemper, that I should rather ascribe the Patient's Recovery to some happy Termination of it, than to the Efficacy of the Medicine; so entirely it seem'd to have lost the effectually curative Virtue it was possess'd of in the Years above specify'd, at least, with respect to the Fever under Consideration, which resembles a Quotidian.

If a Child be seized with this Fever, two Leeches must be applied behind each Ear, and a Blister between the Shoulders; and it must be purged with an Infusion of Rhubarb in Beer. And if the Fever seems to intermit after Purging, give a Julap made with the Peruvian Bark.

It is further to be noted, that tho' Children are as subject to this Kind of Fever, as grown Persons, and consequently ought to be cured by the same Method; yet less Blood must be taken away according to their Age, to which Purging likewise ought to be adapted, and perhaps need not be so often used; the Distempers of Children and young Persons frequently yielding to the first or second Purge. Nevertheless, it should be well consider'd, whether the Fever which is treated in this manner does certainly belong to this Constitution, or is of a different Kind; which ought likewise to be attended to with the same Exactness in Fevers of all other Constitutions.

But to return to the Fever under Consideration, which is that of the present Constitution: It must be carefully observed, in this Kind of Fever, in the same manner as in the Rheumatism, and several other Distempers, only curable by Evacuations, that if we obstinately persist in the Use of the above-mention'd Evacuations, till the Symptoms go quite off, the Disease will often prove fatal: For it is not uncommon to find some slight Symptoms remain a while, even after the Disorder vanishes, which, notwithstanding, do not endanger a Relapse, inasmuch as they go off by degrees spontaneously, as the Patient recovers. In Effect, these Symptoms are frequently nothing more than the genuine Product of the repeated Evacuations, order'd to cure the Disease, and partly occasion'd by the Empitness, proceeding from the slender Diet used throughout the Course of the Cure; all which, when they affect such Subjects as are much debilitated, and in a manner worn out with Distempers, give Rise to Vapours, as in Women, and proceed from the Weakness and low State of the Animal Spirits. For this Reason, therefore, after using such Evacuations as are sufficient to remove the Disease, a judicious Physician ought to forbear the unreasonable Use thereof, and wait a while to see what Time will contribute to this End, which frequently proves the best and most successful Physician, in conquering these slight Symptoms; and I have, indeed, often known them go off in the Declension of such a Disease, without any thing more than an Opiate, taken two or three Nights successively.

The Method just recommended is the best, that I have ever try'd in curing this Fever; and, if it fails of effectually curing, it at least brings it to Intermit, and then it always yields to the Bark. But as Purging, as it is here directed, in order to cure this Fever, may perhaps seem detrimental to some Persons, I assert, from Experience, that nothing cools so much, and so surely, as Purging after Bleeding, which should be first used in all Cases. For tho' a Purge, whilst it operates, may, for the present, raise a greater Commotion in the Blood and Juices than there was before, and of course increase the Fever, yet that Mischief will be much over-balanced by the immediately subsequent Benefit: For Experience shews, that Purging, after Bleeding, checks a Fever sooner and better than any other Remedy whatsoever, inasmuch as it carries off the foul Humours whence the Fever originally proceeded, which, supposing them

not to have been vitiated before, are at length inflam'd and inspissated by the Heat of the Fever, and so contribute to render it more lasting; and likewise, as it makes way for an Opiate, which operates with more Speed and Safety, than if the morbid Humours, which might otherwise lessen its Virtue, had not been expel'd by Purging.

Whereas, on the contrary, that Method which consists in carrying off the febrile Matter thro' the Pores of the Skin, is not only less certain, but more troublesome and tedious, as prolonging the Disease several Weeks, and brings the Patient's Life into imminent Danger; and, though he is at length so happy as to escape Death, reduces him to the Mortification of taking a Multitude of Medicines, during the long Continuance of the Fever, to remove those Symptoms which proceed from ill Management, by attempting to cure it by an extremely hot Regimen, and heating Medicines, which, of its own Nature, requires the coolest of both Kinds. And thus, while Men of unsound Judgment tie themselves up to follow Rules of Art, as they are falsely term'd, despising the contradictory Testimony of their Senses, and perplexing the Cure by their Hurry and Apprehensions, they change a Disease, which, of itself, goes off in a little time, and easily yields, into a lasting and difficult Disorder.

For these Reasons, therefore, I hope I may, with due Confidence, assert, that the Method of Cure above deliver'd, which consists in Bleeding and Purging, is the most effectual one to conquer most Kinds of Fevers. Sweating is, indeed, properly speaking, Nature's Method of expelling the febrile Matter, and best adapted to the End, whenever Nature, unassisted, first digests the morbid Matter, and, after it is sufficiently concocted, carries it off gently thro' the Pores; which successful Manner of curing Fevers by Nature having been often observed by practical Physicians, the *Theorists* thence took Occasion to make this Rule, That all Fevers may and ought to be cured only by Sweating.

But, admitting this Conclusion, it is manifest, that Art, how nearly soever it may seem to imitate Nature, cannot always certainly cure Fevers by Sweat: For Art is unacquainted with the Manner of duly preparing the morbid Matter for Expulsion; and tho' this were no Secret, yet there are no certain Signs indicating its due Preparation; whence the fittest Time of raising a Sweat must necessarily likewise be unknown. And, sure, none but an obstinate Person will deny it highly dangerous to excite Sweat inconsiderately, before the due Concoction of the febrile Matter, as the translating the unconcocted Matter to the Brain must increase the Distemper. Besides, the judicious Aphorism of *Hippocrates*, viz. "That concocted, and not crude Matters, are to be evacuated," seems to relate more to Sweating, procured by Art, than to Purging: For a Man must be but little conversant in the Practice of Physic, not to know, what Numbers of Persons are injured every Day by old Women, and unskilful Pretenders to Medicine, by this preposterous Use of Sudorifics; it being customary with them, when a Person complains of Chills, and a Pain of the Head and Bones, which are the general Fore-runners of a Fever, to put him to Bed immediately, and use their utmost Endeavours to promote Sweat. But this ill-timed Attempt is so far from preventing the Fever, which might perhaps have gone off spontaneously, or upon taking away a little Blood, that, on the contrary, it is much increased thereby, and becomes a lasting and inveterate Disease.

It is further to be observed, that as those Sweats, which appear spontaneously in the Beginning of the Fever, are entirely symptomatic, and not at all critical; so those, likewise, which are forced out at this time by Sudorifics, generally forward the Cure no more than the former, which avail nothing to this Purpose. Again, as the proper Time of promoting Sweat is not known, so neither can we tell how long we should persist in this Way; for, if the Sweat be continued beyond the due Time, that is, longer than is requisite to carry off all the morbid Matter, the Waste of those fluid Particles, which should serve to dilute and allay the Heat of the Blood, will be a Means of prolonging and increasing the Fever: Hence, therefore, the Precariousness of this Method appears; whereas, on the contrary, the Physician hath it in his Power to regulate the other Method, which consists in expelling the febrile Matter by Bleeding and Purging, as he shall judge most convenient. Furthermore, this Method deserves the Preference, for this Reason, because it will do no Mischief, tho' it should fail of curing; whereas Sudorifics are pernicious, unless they complete the Cure: For the Heat, arising from a constant Confinement to Bed, as well as the Cordials, always used in this unhappy Regimen, confound the Economy of Nature, excite convulsive Motions of the Limbs, and bring on other Symptoms of an entirely anomalous Nature. These Symptoms cannot be describ'd, because they do not properly come under the History of the Disease; but are produced by an additional Tumult and Confusion, by which Nature is often oppress'd, when we attempt the Cure of a Disorder in this manner. All these anomalous Symptoms are generally attributed to a certain Malignity,

nity, the particular Nature of which is not as yet ascertained.

The Invention of the Term, *Malignity*, has been far more destructive to Mankind than that of Gun-powder. For, as those Fevers are principally intitled malignant which are found most inflammatory, hence it is, Physicians have recourse to certain Cordials and Alexipharmics, in order to expel the imaginary Poison by the Pores; for so it must be call'd, unless they had rather trifle about Words, than propose, in earnest, what may be understood; and, upon the same Foundation, they have adapted the warmest Regimen and Medicines to those Diseases which chiefly requir'd the reverse. We have, indeed, an evident Proof of this in the Cure of the Small-pox, which is one of the most inflammatory Diseases, as well as of other Fevers; Physicians having, perhaps, been led into this Mistake by the Petechiæ, purple Spots, and the like Symptoms, which, in most Subjects, proceed originally from an additional Inflammation of the Blood, already overheated by the Fever; because they seldom come out spontaneously, except in the Beginning of the Plague, or that Sort of confluent Small-pox, attended with the highest Inflammation. In this Kind, indeed, the purple Spots shew themselves in different Parts of the Body, intermix'd with the Eruptions, at their coming out; and are accompanied, at the same time, with a Flux of Blood from the Lungs, or urinary Passages, and a Cough, if the Fever be so high as to put the Blood into a very tumultuary Motion, and cause it to burst the Vessels, and empty itself into the Cavities of the Body. And tho' the purple Spots, in this Fever, proceed not from such a considerable Heat of the Blood as that which occasions such Bleedings; yet they are produced by the same Inflammation, with this Difference only, that it is not so violent; and, when accompanied with such a Flux of Blood, (the only Symptom in the Small-pox which hitherto baffles the Art of Medicine) easily yield to a cooling Regimen.

But if it be inferr'd, that there is some Malignity in the Case, not only from the purple Spots, but also from finding the Symptoms of the Fever milder sometimes than should seem agreeable to Nature, whilst, notwithstanding, the Patient is more debilitated than could be expected for the Time; I answer, that all these Symptoms proceed from Nature's being in a manner oppress'd, and overcome by the first Attack of the Disease, so as not to be able to raise regular Symptoms, adequate to the Violence of the Fever, all the Appearances being quite irregular: For the Animal Economy being disorder'd, and in a manner destroy'd, the Fever is thereby depress'd, which, in the true natural Order, generally rises high. I remember to have met with a remarkable Instance of this, several Years ago, in a young Man I then attended; for tho' he seem'd in a manner expiring, yet the outward Parts felt so cool, that I could not persuade the Attendants he had a Fever, which could not disengage and shew itself clearly, because the Vessels were so full as to obstruct the Motion of the Blood. However, I said, that they would soon find the Fever rise high enough upon bleeding him. Accordingly, after taking away a large Quantity of Blood, as violent a Fever appear'd as I ever met with, and did not go off till Bleeding had been used three or four times. And this may suffice, with respect to these Particulars.

But if the Reasons alleged be not sufficient to prove the Validity of my Sentiments of this Matter, yet, if Experience teaches me, that this Fever does not readily yield to Sweating, it is enough for my Purpose, since it is not Reasoning, but Experience, that shews what Sort of Fevers will yield to, and ought to be cured by Sweat, and what Kind by other Evacuations. And, indeed, no judicious Person, who is sufficiently acquainted with the Nature of Men and Things, would hastily embrace the Sentiments of another Person, tho' of the greatest Authority, in Matters of mere Speculation, not demonstrable by any certain Experiment. A Man of this Character should reflect, that there is so much Difference and Subtlety in Arguments, that tho' a Theory may be proposed by a Person, which shall appear to be founded upon such solid Reasonings as to command the Assent of all that are present; yet, soon after, another Person of great Abilities, perhaps, coming to consider the Hypothesis which seem'd so well establish'd, shews its Inconsistencies, and clearly proves, by more cogent Arguments, that it is no more than an imaginary Notion, not the least Trace of it being discoverable in Nature, and substitutes a new, and seemingly more probable, and artful Hypothesis in the room of it; which, notwithstanding, meets the same Fate as the former, as soon as some third Person, as much superior in Parts to the second, as he was to the first, stands up to oppose it. And there will be no End of the Dispute, till we come at length to him who is arrived at the Height of human Knowledge; but the great Difficulty of finding this Person, and distinguishing him from the rest of Mankind, will soon appear to any one, who is not so extravagantly vain as to lay Claim to the Character himself. For as it is no improbable Supposition, that there

is an almost infinite Number of Beings in these vast Orbs placed above us, in different Parts of the Firmament, possess'd of much more Penetration than weak Men; so it is not certainly known, whether the Brain, which is the Repository of Thought, may not be so form'd by Nature, that Mankind cannot so clearly discover what is absolutely true, as what is best adapted to their Nature. But we shall say no more to those Physicians, who regulate their Practice more by idle Speculations, than Experience derived from the solid Testimony of the Senses.

But if it be objected here, that this Fever frequently yields to a quite opposite Method to that I have laid down, I answer, that the Cure of a Disease, by a Method which is attended with Success only now-and-then, in a few Instances, differs extremely from that practical Method, the Efficacy whereof appears both from its recovering greater Numbers, and from all the practical Phenomena happening in the Cure. Thus, for Instance, abundance of Persons have recover'd of the Small-pox, notwithstanding their having been treated by a hot Regimen, and heating Medicines; and, on the contrary, several have recover'd by the opposite Method. Now, by what means is this Dispute to be decided? And which of the two Methods is to be preferr'd? The surest Way of judging, in this Case, I take to be this: If, in pursuing the former Method, I should find, that the more I heat the Patient, the more I increase the Fever, Restlessness, Delirium, and other Symptoms; and, on the contrary, if it should appear, upon being moderately cool'd, that he is so much the calmer and freer from the Fever, and other Symptoms; and further, that, by keeping the fleshy Parts in such a Degree of Warmth as best suits with the Rising and Suppuration of the Pustules, they grow larger and fuller, than by keeping him over-hot; having, I say, thus stated both Cases, I conceive it cannot be doubted which Method merits the Preference.

So likewise, if I find, in the Fever under Consideration, that the more the Patient is heated, the more he is disposed not only to a Phrenitis, purple Spots, Petechiæ, and the like Symptoms; but further, that the Fever, by this Procedure, is attended with all Sorts of irregular and violent Symptoms; and, on the other hand, if it appears, that another Patient, by treating him according to the Method here proposed, is quite free from these Symptoms; Reason shews, that the latter Method of Practice is much the best, tho' both the Subjects recover by such different Treatment. But if more Patients recover by this Method than the other, the Dispute is so much the more easily determin'd; which, however, I shall decline affirming, for fear of seeming too partial to my own Opinions. *Sydenham*.

Thus we see, that the great *Sydenham*, an Author much more frequently praised than imitated, is fully of Opinion, that Fevers, at least such as he describes, are most commodiously and effectually cur'd by Purging; and it is most certain, that Sweats, extorted by heating Cardiacs or Cordials, are always prejudicial, however beneficial a Diaphoresis may be, when spontaneous, critical, and brought about by the vital Powers.

I have been the more prolix upon this Subject, because I observe the pernicious Custom of exhibiting warm Medicines, with a View of forcing Sweats, still persisted in by many, tho' the Theory, which gave Rise to it, is long ago exploded; whilst the salutary Exhibition of Purges is in a great measure neglected. If my own Experience could add any Weight to the Opinion of *Sydenham*, I could, with great Truth, affirm, that, in most of the epidemical Fevers which are incident to our Climate, Bleeding and Purging, to a proper Degree, generally reduces them, and that in a few Days, either to a Termination or Intermission; and, in the last Case, Purging is an excellent Preparative for the Bark. And I have seen great Numbers of Cases, where, when the miserable Patient had been heated, and, as it were, parch'd, by the continual Use of Cardiacs, without any subsequent Diaphoresis, the Exhibition of a Purge has removed the most threatening Symptoms, and been follow'd by a spontaneous and critical Diaphoresis.

As to the other Method, mention'd above, of administering Purges in minute Doses, it is principally of Use when a Fever is too far advanced, and a Patient too much reduced to admit of one in a full Dose. Thus I have known Rhubarb given in the Quantity of seven Grains or more, and repeated at proper Intervals, till a sufficient Number of Stools were procur'd, and the Patient greatly relieved. Upon these Occasions, it is very remarkable, that the Urine is generally tinged manifestly by the Rhubarb, a Sort of yellow Oil of Rhubarb floating on the Top of it. Now, as the Rhubarb is given in such a Quantity as not to be carried, by reason of its Stimulus, immediately thro' the Intestines, it is highly reasonable to believe, that it is carried into the Blood, where it exerts very salutary Effects, by resolving Obstructions, and stimulating more or less every Gland of the Body, to the great Relief of the Patient.

CATHEAUTONPERAS, καὶ λωρὸν ἡγερς. The Name by which the *Macedonians* call'd the Month, in the Beginning of

of which the Winter Solstice happened. *Galen, Com. 1. in Epid. 1. Tit. 1.*

CATHECTICE, καθεκτική, from κατέχω, to retain. An Adjective commonly join'd with δύναμις, and signifying, with it, the *Retentive Faculty*. *Galen. de Fac. Nat. Lib. 3. Cap. 6.*

CATHEDRA, καθέδρα, in *Hippocrates*, signifies the Anus.

CATHEMERINOS, καθεμερινός, from ημερα, a Day. The same as AMPHEMERINOS, which see.

CATHESTECOS, καθεστηκός, from καθίστημι, to establish, settle, signifies constant, settled, or stay'd; and is apply'd by *Hippocrates*, in his *Aphorisms*, to the Age of Man, and Season of the Year. A Thing is said to be constant, when it preserves its Nature unchanged, or when it is arrived at its Height, and is upon the Point of declining. *Cathestecos* is also an Epithet for a strict and regular Diet, in *Plutarch's Precepts of Health*.

CATHETER, καθήτης, from καθίμι, to introduce.

A Catheter, according to *Galen, Lib. 5. Meth. Med. Cap. 5.* and according to *Paulus Aegineta, Lib. 6. Cap. 59.* is an oblong, hollow, crooked Instrument, or Tube, used by Surgeons in the Disorders incident to the Bladder. It always retain'd the common Name of *Catheter* among the *Greeks*; but among the *Latins*, as we see in the twenty-sixth Chapter of the seventh Book of *Celsus*, it was call'd *Fistula*, and had the Epithet *Aenea* bestow'd on it, from the Matter of which it was form'd.

CATHETERISMUS. The Introduction of the Catheter into the Bladder.

Tho' the Introduction of the Catheter thro' the Urethra into the Bladder is often look'd upon as a thing attended with no Difficulty by unskilful Surgeons, yet various Causes and Obstacles concur to render the Operation generally so difficult, that it does not always succeed, even in the Hands of the most skilful and expert Surgeons, who have had long and frequent Practice in this Way. The Use of the *Catheter*, both in Men and Women, becomes necessary principally for two Reasons. The first Reason then is, that, in Men who seem to be afflicted with the Stone in the Bladder, we may certainly discover whether that is really the Case, or not; for the other Signs of the Stone, such as a Pain in the Bladder, a difficult Discharge of the Urine, a Strangury, or an Ischury, are often found to prove fallacious, since they may arise from an Inflammation, an Abscess, or Ulcer of the Bladder, or from a Tumor situated about its Neck. The other Reason which renders the Use of the Catheter necessary is, that when Patients are, from any Fault of the Bladder, afflicted with a Difficulty of discharging their Urine, or a total Suppression of it, which the *Greeks* call'd *ixveia*, the Urine contain'd in the Bladder, and exciting Pain, a preternatural Distention of the Bladder, and other troublesome Symptoms, may, by means of this Instrument or Tube, be drawn away. *Hildanus, in Cent. 2. Obs. 65.* informs us, that, at one Time, six Pounds, Apothecary's-weight, of Urine, were taken from the Bladder of a certain Patient; and that an old Man had his Bladder distended so much, that it reach'd very near his Navel, and his Abdomen was render'd tumid, like that of a pregnant Woman. *Panarolus, in Pentecost. 1. Obs. 27.* informs us, that, in a Bladder distended to the Navel, he saw about twenty Pints of Urine. Now, unless the Bladder be seasonably freed from this Load, 'tis to be dreaded, that the Patients will be afflicted with the most acute and racking Pains, an Inflammation or Gangrene of the Bladder, and with Convulsions; or, if these should frequently recur, that they should fall Sacrifices to their Disorder. Not that the Use of the Catheter is absolutely necessary, or even proper for the Cure of every Ischury, or Difficulty of making Water; for when, from any Fault or Obstruction of the Kidneys and Ureters, the Urine is retain'd, the Use of a Catheter is entirely superfluous, because, in this Case, the Urine is not lodg'd in the Bladder. The Physician is, therefore, on such an Occasion, to attempt the Removal of the Disorder by proper Medicines. When the Urine is suppress'd, and, at the same time, lodg'd in the Bladder, which is principally known from the Pain and Swelling about the Pubes, whether this Suppression arises from Cold, or from too long a Suppression of the Urine from a culpable Modesty, or any other Cause, by which the muscular Fibres of the Bladder are distended, and lose their Power of Contraction, or from a spasmodic Contraction of the Neck of the Bladder, we are not, in these Cases, to have immediate recourse to the Use of the Catheter, because it cannot, for the most part, be introduc'd without exciting Horror, and even Pain, in the Patient. Proper Medicines, therefore, and such as are contrary to the Cause of the Disorder, are first to be tried; and, when these prove ineffectual, the Catheter is to be used. Accordingly, *Fabricius ab Aquapendente*, in his *Operat. Chirurg.* recommends Oil of Capers as a Specific, especially in Children; others prescribe Oil of Scorpions, apply'd warm, or before a Fire, to the Region of the Bladder; and I myself, says *Heister*, have observ'd happy Effects produc'd by roasted Onions apply'd to the Pubes. Sometimes a gentle Pressure of the Abdomen by the Hand, especially when the Disorder proceeds from a Relaxation of the Bladder,

promotes a Discharge of the Urine. Sometimes also this Species of Disorder is cur'd by Suction: In Children, for Instance, the Nurse or Midwife, and, in Adults, the Surgeon, or any other Person, is to take the Penis of the Patient in his Mouth, and suck out the retain'd Urine. But when the Disorder arises from a violent Inflammation in the Neck of the Bladder, Relief is so little to be expected from the Catheter, that it cannot be safely introduc'd into the Bladder, by reason of the Narrowness, Inflammation, and violent Pain of its Neck; for, if the Instrument should be forcibly introduc'd whilst the Inflammation is violent, it is to be dreaded, lest some of the internal Parts should be lacerated or broken, a violent Haemorrhage excited, the Pain and Inflammation increased, and a Gangrene, or Death itself, brought on. On the contrary, when the Inflammation is lessen'd by Venesection, resolvent Cataplasms, and proper Clysters, the Catheter is often successfully introduc'd, and Relief afforded. The Instrument also, of which we now speak, is very properly and successfully us'd,

First, When, by reason of any Stone lying internally on the Sphincter or Neck of the Bladder, the Urine cannot be discharg'd.

Secondly, When a preternatural Weakness of the Bladder hinders the Urine from being discharg'd in the ordinary manner, and when other Remedies prove ineffectual, as frequently happens in very old Persons, and Women weaken'd by difficult Labours, and sometimes in such as have been expos'd to Cold.

Thirdly, When, by too long a Retention of the Urine, either from a Principle of Modesty, or any other Cause, the Bladder is so distended, and consequently weaken'd, as to become insufficient for discharging its Contents. By a Disorder of this Nature the celebrated Astronomer *Tycho Brahe* is said to have lost his Life.

Fourthly, The Catheter is properly us'd, when any Mucus, or coagulated Blood, or glutinous Pus, or Particles of corrupted Flesh, such as those which generally stick in the Neck of the Bladder, in case of Ulcers or Wounds of the Kidneys, or after Discharges of bloody Urine, block up the Passage of the Urine.

Fifthly, and lastly, The Use of a Brazen or Silver Catheter seems absolutely necessary, when a Caruncle, a Tubercle, an Abscess, or a large and hard Cicatrix after an Abscess, arise in the Urethra, or about the Neck of the Bladder; and when the Prostate are so inflam'd, or by a Scirrhus, an Abscess, or any other Cause, render'd so tumid, as to prevent the Discharge of the Urine. But, because the Catheter cannot, for the most part, be introduc'd without Difficulty and Pain, it ought never to be us'd till milder Remedies have prov'd unsuccessful. In the last Months of Pregnancy also, when the Child presses so upon the Urethra, as to prevent a Discharge of Urine, and sometimes in a Prolapsus Uteri producing an Ischury, the Introduction of the Catheter is absolutely necessary.

The Catheter is generally introduc'd with far greater Ease into Women than into Men, because the former have naturally not only a shorter, but also a larger and more direct Urethra, than the latter: It is, however, generally very difficult to introduce it even into Women, unless the Surgeon, from an anatomical Acquaintance with the Structure of the Parts, perfectly knows the external Mouth of the Urethra, together with its Position and Direction; for, in the Beginning of the Vagina, there are several Pits or Holes which may easily impose on the Surgeon. But, that he may readily find the Mouth of the Urethra, or the Passage of the Urine, it is absolutely necessary he should carefully examine that Part which is situated directly within the Lips of the Pudenda, and lies about a Finger's Breadth below the Clitoris (See *Tab. 50. Fig. 2. D.*); for here a small kind of Cicatrix, as it were, or Hole, discovers the urinary Passage. But the Method of performing this Operation, which, by *Paulus Aegineta*, is elegantly styl'd *Catheterismus*, is as follows: The Woman must be laid upon her Back, either on a Bed or a Table: Then, her Thighs being carefully separated from each other, the Surgeon is, with one Hand, to distend the Lips of the Pudenda, or order another to do it; and, with the other Hand, he is, as cautiously as possible, at the Orifice above specify'd, to introduce into the Bladder a Silver or Brazen Catheter, represented in *Tab. 48. by Fig. 1. or 2.* This Instrument ought to be seven, eight, or nine Inches long, as thick as a small Goose's Quill, and about its Extremity, represented by B. it must be anointed with Oil before the Operation is attempted. When it is duly introduc'd, upon pulling out the Wire, A. from the Catheter, the retain'd Urine is discharg'd thro' the Holes, B. when the Instrument is us'd in order to give Relief in a difficult Discharge of the Urine: But if the Catheter is introduc'd into the Bladder with a View to discover a Stone, it is proper to turn it gently every Way, carefully observing, at the same time, whether any Noise is made, or whether the Instrument touches any hard Body in the Bladder; for, when any thing of this kind is perceiv'd, we may justly conjecture, that there is a Stone lodg'd in the Bladder: But, when a Hardness alone is perceiv'd, without any Noise, the Disorder is sometimes only a Tumor or Scirrhus. As to the Structure and Form of Catheters themselves, we must observe, that,

that, for Women, they are generally us'd straight; or, at least, very little incurvated, like that represented in *Tab. 48. Fig. 1.* But I do not think this Form at all necessary, since those design'd for Men, variously incurvated, made of different Lengths for different Patients, and represented in *Tab. 48. Fig. 2, 3, 4, and 5.* may be equally commodiously used by Women. Upon a Discharge of the Urine procur'd by this means, the Disorder is often, tho' not always, remov'd; but when, after it is once evacuated, a Difficulty of discharging it still remains, the Operation must be repeated as often as the Necessity of the Patient calls for it; or the Catheter may be left introduc'd, till the Bladder is restor'd to its former Vigour, and becomes capable of discharging its Contents at Pleasure. For this very Reason I would advise Women in Labour, as soon as they perceive any Difficulty in discharging their Urine, to procure an Evacuation of it with such a Catheter, lest, if the Labour should be too long protracted, the Bladder should be so distended, its Tone so weaken'd, and its Nerves so debilitated, as afterwards to admit of no Cure.

We have already observ'd, that it was a more difficult Task to introduce a Catheter into Men than into Women; for, in the former, the Urethra is generally so winding and long, that unless the Surgeon is previously acquainted, from an anatomical Knowledge of the Parts, with its Figure and Position, (for which see *Tab. 50. Fig. 1. E. D.*) is Master of certain Dexterities he has seen observ'd by other skilful Surgeons, and has himself frequently attempted the Operation on Subjects, he generally has no great Success in introducing the Catheter. Tho' these particular Dexterities are better learn'd by having them exhibited to the Eye, than by having them describ'd in Words; yet, for the sake of Beginners, we shall succinctly lay down the most important Directions, with respect to the Application of the Catheter. The Surgeon, then, for the Use of Men, must have several Catheters in Readiness. *Celsus*, in the twenty-sixth Chapter of his seventh Book, requires only three, which he orders to be neither too slender, nor too thick: But I would advise him to have several of these Instruments, four at the very least, some long, some short, some slender, and some thicker; but, at the same time, the Whole of them must be smooth, and well polish'd. See *Tab. 48. Fig. 2, 3, 4, and 5.* That represented by *Fig. 2.* may be us'd for a Boy, almost to the sixth Year of his Age; that by *Fig. 3.* till the twelfth Year of his Age; that by *Fig. 4.* till the sixteenth; and that by *Fig. 5.* is to be us'd for Patients farther advanc'd in Years. The longest of those design'd for Men *Celsus* order'd to be fifteen Inches in Length, and the shortest nine, a Length sufficient even for Men; whereas those of the middle Kind were to be of various intermediate Lengths. Some would have their Catheters very slender, imagining that, in consequence of their being so, they are the more easily introduc'd into the Bladder; but this is a false Piece of Practice, since these slender Catheters easily insinuate themselves into, and stop in the Corrugations and Foldings of the Urethra, which often occur in old Men, and which would be more commodiously pass'd over by thicker Catheters. This *Hildanus* confirms by two Instances, in which neither he himself, nor the Lithotomist, could introduce a slender Catheter into the Bladder, but easily introduc'd one as large as a Swan's Quill. *Rauvins* has asserted the same, and Experience has convinc'd me of the Truth of it. The best Catheters are those made of Silver, well polish'd, incurvated in a certain Degree, and, for the sake of Strength, that they may not bend more than is necessary, containing within them the Silver Wires represented by the Letters A. A. A. &c. When the Operation is to be perform'd, the Patient is to be laid upon his Back, either on a Bed, or on a Table: Then the Surgeon, standing on the Right Side, is to take the Patient's Penis in his Left Hand, and raise it upwards; and, with his Right Hand, he is to take hold of the Handle, C. of a Catheter justly proportion'd to the Size of the Patient, anointed with Oil at its other Extremity, and so gently to introduce it into the Urethra. This Catheter he is to introduce in such a manner, that the convex Part of it shall be turn'd to the Abdomen, (See *Tab. 50. Fig. 3.*) and it is to be convey'd as far as the lower Part of the Os Pubis. After this the Handle of the Catheter is, by a certain gentle Dexterity, to be turned on the Left Hand, towards the Abdomen of the Patient, so that the concave Part of the Catheter may be turn'd to the Abdomen, as in *Fig. 4.* Then the Point of the Catheter, B. is to be first gently depress'd below the Os Pubis, and then cautiously press'd upwards into the Bladder; and, upon retracting the Wire, A. the retain'd Urine enters the Holes, B. B. and is discharged from the other Extremity at the Handle; and, when the Whole is evacuated, the Catheter is to be taken out. The Catheter may sometimes also be commodiously introduc'd when the Patient is sitting in a Posture somewhat inclin'd, or standing and leaning to a Wall; in which Cases the Surgeon, standing before, or on either Side of the Patient, introduces the Catheter in the manner already describ'd. Besides, this Operation is commodiously perform'd, tho' most of the modern Authors seem to make no mention of it, by placing the Patient on his Back, either on a Bed or a Table, whilst the Surgeon,

standing on his Left Side, takes his Penis in his Left Hand, and reclines it a little towards the Navel: Then he is to introduce the Catheter, with its concave Part to the Abdomen, into the Urethra, as far as the Os Pubis; and by moving the Handle, so as to describe an Arch, towards the Knees, without that Dexterity of turning it under the Arch of the Os Pubis, he gently forces it into the Bladder. This Method of applying the Catheter often succeeds more easily than the others, especially with Surgeons little accusom'd to Operations of this Kind. But, in all these Methods, the Surgeon is to proceed cautiously, prudently, and gently, lest, by the Application of too great Force, the Urethra should be rashly lacerated by the Catheter, and, by that means, violent Pains, severe Hæmorrhages, dangerous Gangrenes, and Death itself, be brought on; for I have known Disorders of this Kind excited by unskilful and rash Surgeons. Sometimes, when the Urine is once evacuated, the entire Disorder is remov'd, and the Patient restor'd to Health; and sometimes the Operation is to be repeated at Intervals, if the Patient cannot spontaneously discharge his Urine; and I have known some Patients who soon learn'd to introduce the Catheter themselves. For as by means of this Instrument the Cause of the Retention of Urine is not always remov'd, but only a dangerous Symptom; so the Cure of the former is to be attempted by itself, whether it be an Inflammation, too great a Relaxation of the Bladder, Caruncles, or the Prostata become too tumid. By reason of the Inflammation of the Neck of the Bladder, the Catheter cannot often be introduc'd into it at the Beginning; whereas it finds a more easy Access when the Inflammation is lessen'd by Venesection, and the Exhibition of proper Medicines. When, upon introducing the Catheter into the Bladder, the Urine is not quickly discharg'd, as it sometimes happens, the Abdomen is to be gently press'd, or rub'd with the Hands, by which means the desir'd Effect is generally produc'd, or the Urine may also be extracted by Suction. If the Catheter should be stop'd by that Caruncle of the Prostata, which Anatomists call the *Caput Gallinaginis*, as it sometimes happens, it is not to be forcibly thrust forwards, for fear of hurting some of these Parts; but it is rather to be retracted a little, and then gently thrust forwards, by which it often passes over this Caruncle, and enters the Bladder. If a venereal Caruncle in the Urethra prevents the Introduction of the Catheter, it is to be broke thro' by it.

When the Catheter is introduc'd into the Bladder in order to discover a Stone, it is proper diligently to move it up and down in all Directions; for, as soon as any hard Body makes a Resistance to the Instrument, and a Noise and Crackling, as it were, are perceiv'd internally, we have no great Reason to doubt, that a Stone is lodg'd in the Bladder; but, if none of these Circumstances are perceiv'd, we may probably conjecture, that there is no Stone, or, at least, we may doubt of its Existence. In like manner, when the hard and sonorous Body, which, with great Difficulty, we could reach with the Catheter, vanishes, as it were, and is no more to be perceiv'd, this is a Sign, that the Stone is but small, or has fallen into some Pit or Receptacle of the Bladder, such as are now-and-then observ'd. See *Tab. 53. Fig. 1. and 2.* But 'tis a Sign, that a larger Stone is lodg'd in the Bladder, if, upon moving the Catheter, it immediately strikes upon some hard and sonorous Substance. Moreover, if the Catheter slips easily, and without Interruption, on the Surface of this Body, the Stone must necessarily be smooth: If the contrary happens, and if, at the same time, the Urine is bloody, we conclude, that the Surface of the Stone is rough, and beset, as it were, with Spiculæ. If, on the contrary, this Matter is with Difficulty remov'd from its Place, or if a distinct Sound is perceiv'd, we conclude, that the Stone is large and hard: But, if the Matter easily yields to the Instrument, if the Sound is less acute, the Urine sandy, and carrying along with it small Scales, as it were, we, according to the Observation of *Celsus*, conclude, that the Stone is soft.

But lest these Patients should be rack'd with continual and additional Pains, in whom there is a Necessity for repeating this Operation again and again, either in consequence of the Weakness of the Bladder, or a Stone internally blocking up its Neck; or in consequence of the Urethra collapsing immediately as the Catheter is drawn out, as sometimes happens; and since the Operation cannot, for the most part, be performed without Pain and Trouble; some modern Surgeons, among whom *Solingen* was, perhaps, the first, have, for relieving the Difficulty of Urine, advis'd the Use of a Silver flexible Catheter, made of smooth Silver-wire twisted in a particular manner, see *Tab. 48. Fig. 6.* For this Instrument may, especially when the Penis is small, without any Trouble, be left in the Bladder for some Days, or till, being restor'd to its former Vigour, it no longer requires a Catheter for evacuating its Contents, provided the Instrument be secur'd with proper Ligatures about the Abdomen. But, as it is generally very difficult to introduce flexible Catheters into the Bladder, it is, for the most part, necessary previously to introduce into the Urethra an ordinary Catheter, and to leave it for some time there,

in order to enlarge the Passage, thro' which the flexible Catheter is afterwards to be convey'd into the Bladder. But lest this Passage should unfortunately collapse, we are to take care, as soon as the inflexible Catheter is drawn out, dexterously to introduce the flexible one into the Bladder, and leave it in it till the Difficulty of discharging the Urine is either remov'd, or at least creates the Patient a very small Degree of Trouble. *Helmont*, in the third Chapter of his Book *De Lithiasi*, entirely rejects Silver and Brazen Catheters of every Kind, as too severe and painful; and recommends a new flexible one of Leather, invented by himself, and sewed up in the Form of a Pipe; and he flatters himself with the Thoughts, that this Contrivance, in consequence of its Softness, creates no Pain. But by this very Thing he seems to convince the World, how little he has been conversant in chirurgical Operations; since, by soft Catheters of this Kind, the Intention must either be not at all, or at least less commodiously answered. Thus also *Fabricius ab Aquapendente*, in his *Operat. Chirurg.* informs us, that he prepared and used a flexible Catheter of Horn; and others have prepar'd the like Instruments of other Substances. But those made of Silver are found most commodious, and therefore universally used by the greatest modern Surgeons, not only because they have a due Degree of Strength, but also because they are capable of being well polish'd, and susceptible of receiving the particular Figure and Degree of Curvature necessary for their being easily and commodiously introduced into the Bladder.

Some, as *Nuck* and *Solingen*, order several Holes to be made in the crooked Part of the Catheter, that the Urine may be discharg'd with the greater Ease. But two at its Extremity are sufficient, since by their means the Urine is, for the most part, conveniently discharg'd; for a larger Number of Holes, especially when the *Corpus Spongiosum* of the Urethra, rendered too tumid by a Congestion of Blood, insinuates itself into them, rather hinder the Introduction of the Catheter into the Bladder, easily lacerate the *Corpus Spongiosum*, and by that means excite various troublesome Symptoms. For this Reason *Mr. Petit*, a celebrated Surgeon, recommends another Species of Catheter, with no Holes at all in its Sides; and for extracting the Urine, gives it the Preference to all others (see *Tab. 48. Fig. 7.*). This Catheter has a Perforation at its Extremity, A, stop'd up with the oblong Globe, B. But when the Instrument is introduced into the Bladder, the Handle of the Wire, C, is press'd inwards; by which means the Globe, B, is forced out of the Catheter, in the manner represented by the Letter D. in the adjacent Figure; by which means the Urine is capable of passing thro' the Catheter. This Intention is, however, generally well enough answered by the common Catheters. Lastly, Catheters are useful, when, in various Disorders of the Bladder, we intend to inject some Substance into it; in which Case, by adapting a Syringe, or the Bladder of an Animal, to the other Extremity of the Catheter, any Liquor, proper for the Disorder, may be injected into the Bladder, as *Paulus Aegineta*, in the fifty-ninth Chapter of his sixth Book, observes. An Abscess of the Neck of the Bladder, preventing a Discharge of the Urine, is also sometimes broken by the Catheter, and the Disorder by that means remov'd. *Henricus Meibomius* has publish'd a Dissertation on this Operation, intitled *De Catheterismo*. *Heister*.

CATHIDRYSIS, καθίδρυσις. The reducing of a Thing to its proper Place. The Verb καθιδρύειν is used by *Hippocrates*, in the same Sense, *Prorrh.* 2.

CATHIMIA, in the spagirical Language, signifies, 1. a subterraneous mineral Vein, whence Gold and Silver are digged. 2. Concretions in the Furnaces of Gold and Silver. 3. Gold. 4. Spuma Argenti. 5. Soot that adheres to the Walls in burning of Brass. *Rulandus*. It is the same as **CADMIA**, which see.

CATHMIA affidia. The *Cathmia* of Silver, which is of the Colour of Litharge, that is, burnt Lead. *Cathmia* is the Spuma Auri, Æris, et Argenti; and there is also the *Cathmia Ferri*. *Rulandus*. See **CADMIA**.

CATHOCHITES. The same as **CATOCITES**, which see.

CATHODOS, καθόδος, and in the *Ionic* Dialect κάτοδος, (from κατά, a Preposition frequently adding the Signification of downwards, to the Word with which it is compounded, and ὁδος, a Way) is a Descent; thus καθόδος ἱπικρινίων, *Hippoc.* περί παρῶ, is a Descent of the Blood, in order to the Formation of the **CATAMENIA**.

CATHOLCEUS, καθολκέυς, an oblong Fillet, which came over the whole Bandage of the Head called *Periscapistrum*, and held it firm. *Galen. de Fasciis*. See **PERISCAPISTRUM**.

CATHOLICUS, καθολικός, from κατά and ὅλος, the Whole, universal, a boasting Epithet of some Medicines, pretended to cure all Distempers, and most liberally bestow'd by the Chymists on their Nostrums.

CATHYGROS, καθυγρός, from κατά and ὑγρός, humid, excessively humid, is an Epithet apply'd by *Hippocrates*, *Aph.* 62. *sect.* 5. to the Uterus, who reckon'd such a State of it among the Causes of Barrenness.

VOL. II.

CATHYPNIA, from ὕπνος, Sleep, is a profound Sleep. *Blancard*.

CATIAS, κατὰ, in *Paulus*, *Lib. 6. Cap. 74.* is an Incision-knife, used in extracting the dead Fœtus; and also in opening an Abscess of the Uterus. It seems to be derived from καθίμι, to introduce, for which *Paulus* uses καθίμι, and καθίμι for καθίμι, according to the *Ionic* Dialect.

CATILLIA. The Weight of nine Ounces. *Johnson*.

CATILLUS CINEREUS, or **OBRUSÆ CATILLUS**. See **CAPELLA**. *Blancard*.

CATIMIA. The same as **CADMIA**. *Rieger*.

CATINUM Alumen, is Pot-ash.

CATINUS FUSORIUS. See **CRUCIBULUM**.

CATISCHON, κατίζων, in *Lib. 6. Epid. sect. 8. Aph.* 33. is one who is costive, or not easily purg'd, and is there oppos'd to ὁ βραχὺ καθαίρουμενός, "one who is soon purged."

CATMA. Filings of Gold. *Rulandus*. *Johnson*.

CATOBLECTA Animalia. Animals furnished with Civet. *Castellus*.

CATOBLEPAS, or **CATOBLEPON**, κατὰβλέπων. A wild Beast found in *Ethiopia*, which *Pliny* takes Notice of. It is fabled to kill, like the Basilisk, by its Look.

CATOCATHARTICA, from κάτω, downwards, and καθαίρειν, to purge, Medicines which operate by Stool, by way of Distinction from *Anocathartica*, those which purge upwards, that is, Emetics.

CATOCHE, κατοχή, κάτοχος. The same as **CATALEPSIS**, which see.

CATOCHEILON, κατώχεilon. The inferior Lip.

CATOCITES, from κατέχω, to retain. A Stone found in *Corfica*, said to attract and retain the Hand when laid upon it. *Pliny*, *Lib. 37. Cap. 10.*

CATODON, from κάτω, below, and ὀδὴν, a Tooth. A Name of the Sperma-ceti Whale, so call'd because furnish'd with Teeth only in the inferior Jaw.

CATOECDIOS, κατοικίδιος. Domestic, familiar, easy to be made or procur'd. *Hippocrates* applies it to Extensions necessary for replacing luxated Limbs, in his Book *de Articulis*.

CATOMISMOS, κατωμισμός, from κάτω, under, and ἔμειναι, the Shoulder, a putting under of the Shoulder. A Method of reducing a luxated Shoulder, which is thus described by *P. Aegineta*, *Lib. 6. Cap. 114.* A lusty young Man, taller than the Patient, or at least higher, [by the Advantage of Place] is to stand at the affected Side; and to put his Shoulder under the Armpit of the Patient as he is standing, and, lifting him up, is to stretch out his Arm, and draw it down to his own Belly, so that the Patient hangs with the rest of his Body above the Ground, behind the Man who raised him; if the Patient be light, a slender Boy is to hang on him. And thus while the Patient hangs with his Arm and Body in equal Poise, the other Person's Shoulder, which bears their Stress, forces the luxated Bone into its proper Place.

CATOPTER, κατὸπτερος, from ὀπτερον, to see. It signifies a *Speculum Ani*. See **SPECULUM**.

CATORCHITES, κατὰρχιτης. A sort of Wine, whose Preparation and Virtues are described by *Diocorides*, *L. 5. C. 41.* as follows: *Catorchites*, which some call *Sycites*, is made in *Cyprus*, after the same manner as Palm-wine, [see **PALMEUM VINUM**] but with this Difference, that in making of *Catorchites*, some, instead of Water, put an equal Measure of a Dilution of Husks of newly pressed Grapes. For the Preparation of this Wine they make Choice of black Caricæ, or dry'd Figs, of the sort which they call *Chelidonian*, or *Purple*; these they macerate; and after ten Days Maceration draw off the Liquor, and make a second, and after that a third Affusion of the Dilution of Grape-husks. At due Distances of Time, they make a fourth and a fifth Affusion, which, turning acid, serve for Vinegar.

This Wine is of fine Parts, flatulent, bad for the Stomach, and causes a Decay of Appetite; but is good for the Belly, provokes Urine and the Menstrues, and procures Plenty of Milk. However, it generates bad Blood, and brings on an Elephantiasis, as does also *Zythus*.

Some to fifty-four Gallons of Liquor put ten Pounds of Salt, others nine Gallons of Brine, with an Intention of rendering it less subject to corrupt, and more proper for the Belly. Some lay Thyme and Fennel in the Bottom, and upon them the Figs; then spread another Lay of the said Herbs, and proceed thus alternately with a Lay of Fruit, and then of Herbs, till they have filled the Vessel.

CATORETICA, κατὰρετική, from κάτω, downwards, and ῥέω, to flow. Purgative Medicines. *Catoterica* imports the same.

CATOXYS, κατόξυς, very acute.

CATOBIL. Earth. *Rulandus*.

CATTU-SCHIRAGAM. The *Malabar* Name for the *Scabiosa Indica Arborea*.

This is a Shrub of a Man's Height, growing in sundry Places; the Root is short, strait, and of a bitterish Taste; the Trunk round, and an Inch thick, with a watry-green Bark, and

and a reddish Wood; the Leaves oblong, narrow, sharply mucronated, and of a very bitter Taste; the Flowers are small, cluster'd, of a faint purple-red Colour, and without Smell. The Seeds, which are contain'd in great Numbers within foliaceous Heads, are of an oblong round Form, striated lengthwise, and its lower Part cuspidated, with the Cuspis, or Point, inserted into the Base of the foliaceous Head; each of them has its Top surrounded with a Tuft of pretty long, whitish, and yellowish Hairs, from the Middle of which proceeds a small Flower, with a greenish Pedicle. The Shrub bears Flowers once a Year, in the rainy Season.

Bruised, and boiled in Oil, it makes a good Fomentation for Pustules. The Head, rubbed with the expressed Juice, relieves the Patient under a Fever proceeding from Cholera. The Seeds powder'd are drank in warm Water for the Cough, and Flatulencies, and to kill Worms in Children. They also ease Pains in the Belly, provoke Urine, and, mixed with warm Water, are good to anoint Parts affected with the Arthritis, or Pains contracted by Cold. *Raii Hist. Plant.*

CATULOTICA, κατὰ λωτὴν, from ὤλη, a Cicatrix; Remedies, which, by their eating Quality, wear away gross Cicatrices, and render the Place smooth and clear. *Galen. de Dynamidiis.*

CATULUS. In Botany, a Catkin. See **IULUS**. In Zoology, a Puppy. See **CANIS**.

CATUS.

Felis, Catus, Offic. *Catus domesticus & sylvestris*, Schrod. 5. 280. Schw. Quad. 79. *Felis*, Aidrov. de Quad. Digit. 564. Jonst. de Quad. 126. Charlt. Exerc. 20. *Felis, Catus*, Mer. Pin. 169. *Felis domestica seu Catus*, Raii Synop. A. 170. *Catus seu Felis*, Gefn. de Quad. Digit. 317. **THE CAT**. Dale.

The Fat, Blood, Head, Dung, Skin, and Secundines, are used in Medicine. The Fat of a wild Cat heats, mollifies, dissolves, and is of great Service in Affections of the Joints. The Blood cures a Herpes. The Head of a black Cat incinerated is an excellent Medicine for Diseases of the Eyes, as the Unguis, Nubecula, Albugo, and other Disorders. The Dung cures an Alopecia, and helps the Gout. The Skin is worn to heat the Stomach, and contracted Joints. And the Secundine is hung about the Neck, to preserve the Eyes from Disorders. Dale.

CAVA Vena. The large Vein which receives the reflux Blood, and conveys it to the Heart. See **VENA**.

CAVALAM. A Malabar Plant; call'd also *Arbor siliquosa Malabarica pluribus ad singulos flores Lobis*. I find no medicinal Virtues attributed to it.

CAUCAFON. A Name for the *Moly Indicum*.

CAUCALIS. A Plant of which Boerhaave mentions twelve Sorts. The Characters are;

The Petals are unequal, and in the Shape of a Heart; the Seeds are oblong, and sulcated longitudinally, with denticulated, and, as it were, aculeated Ridges.

1. *Caucalis; arvensis; echinata; magno flore*. C. B. P. 125. M. H. 3. 308.

2. *Caucalis; major; daucoides; Tingitana*. M. U. 65. M. H. 3. 308. a.

3. *Caucalis; Monspelica; echinata; magno fructu*. C. B. P. 153. M. U. 33. M. H. 3. 308.

4. *Caucalis*, Offic. καυκαλίς, Linn. *Caucalis lato Apii folio*, Hist. Oxon. 3. 307. C. B. Pin. 152. *Caucalis arvensis echinata latifolia ejusd.* Raii Hist. 1. 466. Synop. 3. 219. Tourn. Inst. 323. Elem. Bot. 273. Boerh. Ind. A. 63. *Caucalis altera seu secunda*, Ger. 868. *Caucalis Apii foliis, floribus rubris*, Merc. Bot. 1. 28. Phyt. Brit. 24. *Caucalis Apii foliis, flore rubro*, BASTARD PARSLEY, WITH RED FLOWERS, Ger. Emac. 1021. Mer. Pin. 23. *Caucalis seu Echinophora teretica latifolia purpurea col. ejusd.* *Caucalis arvensis latifolia purpurea*, BROAD-LEAV'D BASTARD PARSLEY, WITH RED FLOWERS, Park. Theat. 920. *Caucalis Anglica flore rubente*, Ejusd. *Lappula canaria latifolia sive Caucalis*, J. B. 3. 86. Chab. 393. *Echinophora femine magno*, Rivin. Irr. Pent. Buxb. 99. Rupp. Flor. Jen. 223. BASTARD PARSLEY.

It grows wild in the Fields, and flowers in June and July. It is either eaten raw, or boil'd as a Pot-herb; and is said, by Dioscorides, to provoke Urine.

5. *Caucalis; Dauci Sylvestris folio; echinato magno fructu*. Botan. Monsp. App. 292. a.

6. *Pseudo-felinum*, Offic. *Caucalis minor flosculis rubentibus*, Ger. Emac. 1022. Raii Hist. 1. 468. Synop. 3. 219. Merc. Bot. 1. 27. Phyt. Brit. 24. Mer. Pin. 23. *Caucalis*, Rivin. Irr. Pent. Dill. Cat. Gist. 136. *Caucalis minor flore rubente*, SMALL BASTARD PARSLEY, WITH RED FLOWERS, Park. Theat. 921. Hist. Oxon. 3. 308. *Caucalis femine aspero, flosculis rubentibus*, C. B. Pin. 152. Boerh. Ind. A. 63. Buxb. 60. *Caucalis rugaris*, Rupp. Flor. Jen. 224. *Anthriscus quorundam femine aspero hispido*, J. B. 3. 83. Chab. 402. *Daucus annuus minor, flosculis rubentibus*, Tourn. Inst. 308. HEDGE PARSLEY.

It grows in Hedges and Thickets, and flowers in July and August. The Seed provokes Urine, and the Menfes.

7. *Caucalis; Segetum; minor; Anthriscus hispido similis*. Raii Syn. 113.

8. *Caucalis; Daucoides; Syriaca; altissima; folio Pastinacæ Sylvestris; flore albo*. H. Mauruc. 43. b.

9. *Caucalis; Orientalis; altissima; folio Ferulæ*. T. Cor. 23. b. H.

10. *Caucalis; Africana; folio minori Rutæ*. Ind. 15. a.

11. *Caucalis; Sylvestris, folio Chærophylly*. Flor. 2. 18.

12. *Caucalis; nodoso, echinato, femine*. C. B. P. 153.

Boerhaave's Index alter Plantarum.

CAUCALOIDES, καυκαλοειδής. This is in *Moschion, de Morbis Mulierum*, the Patella, so call'd from its supposed Similitude to the Flower of the *Caucalis*.

CAUCIUM, καύκιον. A certain Weight mentioned by *Nicolaus Myrpsus, Sect. 10. Cap. 19*. But his Commentators cannot tell what Weight it is.

CAUDA. A Tail. The Tails of Animals consider'd as Aliment are, by *Galen*, represented as hard of Digestion, and crude. *Cauda*, also, signifies the Os Coccygis.

In *Rulandus*, *Cauda Vulpis rubicundi* is Red-lead.

In Botany, *Cauda Equina* is the **EQUISETUM**, which see.

The *Cauda Muris* is a Species of *Ranunculus*.

The *Cauda Porcina* is the **PEUCEDANUM**.

CAUDATIO, in *Blasius*, is an Elongation of the Clitoris.

CAUDEx, *Stipes, Truncus*, κορμός, στελεχος, Trunk, Stock, Stem, is that Part of a Tree, or Shrub, which is between the Root and Branches, and generally rises up from the Root tapering, till it spreads itself into Branches. Through the Trunk is the Juice convey'd for the Nourishment of all the other Parts of the Plant. This Part in Herbs and Under-shrubs is called *Caulis*, or *Thyrus*, καυλίς, the Stalk, and sometimes *Scapus*, and, in some Kinds, *Calamus*, *Calmus*, which may be seen in their proper Places. The Trunk consists of all those Vessels and Parts which are in the Root, and is therefore by *Linnaeus*, in his *Fundamenta Botanica*, called simply the *Root above Ground*. For this Reason Water and Air, which are contiguous to this Part of the Plant, and apply'd to its whole Surface, enter it by the bibulous Vessels of the Bark, and penetrate into its interior Parts, and into the very Root itself. The Use then of the Trunk to the Plant is to distribute the Humour which it receives from the Root, or by Application to its Superficies, to the Parts produced from it, which are the great and small Branches, Leaves, and the rest.

CAVERNA. A Cavern. It is by some Authors applied to the Female Pudenda.

CAVIARIUM. The pickled Spawn of a Sturgeon. See **STURIO**.

CAVICULA or **CAVILLA**. The Ankle. *Schneider* says the Os Cuneiforme was called *Cavilla*, by *Haly-Abbas*.

CAULEDON, καυκαδὸν κατὰ γμα. A Species of Fracture, when the Bone is broken transversely, so as not in the least to cohere in any degree, the fractur'd Parts receding from each other, and slipping sideways, so as not to lie directly against each other, in the manner of a Stalk, καυλος. *Galen*.

CAULIAS, καυλίας. An Epithet for that Juice of the Silphium which flows from the Stalk, by way of Distinction from that which flows from the Root, and is call'd *ρίζιας*.

CAULIS. A Cabbage. See **BRASSICA**.

Caulis, also, signifies a Stalk. Hence such Plants as have a true Stalk are call'd *Cauliferous*.

The Penis, also, and the Vagina, are sometimes call'd by the Name of *Caulis*. See **CAUDEx**.

CAULOTON, καυλωτόν. An Epithet of the *Beta*, Beet.

CAUMA, καύμα, from καίω, to burn, signifies the Heat and Sultriness of the Atmosphere, or of the Body in a Fever, or of an inflam'd Part, or any other violent Heat.

CAUNGA. A Name for the *ARCEA*, which see.

CAUSA. A Cause. Whatever produces a Disease is call'd the Cause thereof. This operates either by inducing a new State of the Solids and Fluids; or by taking away something which is absolutely requisite to the Exercise of some Function.

If a Cause pre-existed in some measure in the Body before the Effect produc'd, it is call'd an internal Cause; but if it existed out of the Body, and by its Application to it produc'd the Disease, it is call'd external.

Internal Causes generally injure, first, the Humours, and then the solid Parts; whereas the external Causes affect the Solids, and, in consequence of that, the Humours; and this holds universally, unless, perhaps, in some few Diseases produc'd by Poison, or Contagion.

The immediate or proximate Cause is that, which, taken all together, immediately constitutes the present Disease; this is always adequate and sufficient to the Formation of the Disease; whether simple or complicated. The Presence of this constitutes and continues the Disease; and the Absence of it removes the Disorder, being very little different from the Disease itself. The Investigation, therefore, of this, is extremely useful, and very necessary.

The

The remote Cause is that which changes the Body in such a manner, as to dispose it for the Reception of a Disease, upon the Accession of another Cause; but it is never adequate or sufficient to produce a Disease alone; nor would the other Cause, the Accession of which is necessary, be sufficient for the Production of the Disease, by itself, but both must concur. The Business of Physic, therefore, is to eradicate both these together, which, in Conjunction, constitute the proximate or immediate Cause.

The remote Cause, inherent in the Body, is call'd Predisponent, Antecedent, and by the *Greeks* προηγμένη and consists principally in Temperament, Plethora, and Cacochymy.

The Cause, whose Accession to the remote Cause excites, and in Conjunction with it forms, the Disease, is call'd the Procatartick Cause, or the προκαταρκτική, or Occasion of the Disease. It is sometimes internal, sometimes external. These *Boerhaave* reduces to four Classes.

First, The *Ingesta*, or Things entering the Body, such as the Air, Aliments, Drink, Medicines, Poisons; such Things as enter by the Pores of the Skin and Nostrils, by the several Passages of the Mouth, Lungs, Oesophagus, Stomach, Intestines, and Pudenda of Women, whether in a visible or invisible manner; whether by Steam, Draught, Deglutition, Clyster, or Injection.

Secondly, The *Gesta*, or Things acted, as Motion of the Whole, or any Part of the Body; Affections of the Mind; Rest, both of Body and Mind; Sleeping and Watching.

Thirdly, Things retain'd, or excreted, whether salubrious, recrementitious, or morbid.

Fourthly, Things apply'd to the Body, as Air, Vapours, Fomentations, Clothes, Liniments, Ointments, Plaisters, together with whatever wounds, contuses, or corrodes.

This Division of the Non-naturals, as they are call'd; is different from that of all other Writers of Institutes, who divide them into six Classes. 1. Air. 2. Meat and Drink. 3. Motion and Rest. 4. Affections of the Mind. 5. Things retain'd and excreted. 6. Sleep and Watching. See NON NATURALIA; and that Part of the Preface which gives an Account of *Galen's* System.

CAUSIS, καῖσις, from καίω, to burn. A Burn. See AMBUSTIA.

CAUSODES *Febris*, καυσώδης πυρετός, a burning Fever. The same as CAUSUS, which see. *Celsus*, Lib. 2. Cap. 8. renders καυσώδης in *Hippoc. Aph.* 58. Lib. 4. by *Febris ardens*.

CAUSOMA, καύσωμα, πύρωσις, in *Hippocrates*, is a burning Heat and Inflammation. *Gorraeus*.

CAUSTICA. Caustics.

Caustic Medicines or Cauteries, derive their Name from the Greek Word καίω, to burn; because, when for surgical Purposes they are apply'd to any live Part of the Body, they burn it to a hard Crust or Eschar; for this Reason they are also call'd Escharotic Medicines. Of this Kind are all those Substances which operate like Fire, by destroying the Vessels of the Part to which they are apply'd, so that the Fluids are discharg'd under the dry'd and burnt Solids, so as to form a kind of Crust. To this Class of Medicines belong, first, what we commonly call Actual Cauteries, such as Fire itself, any Metal, which, when ignited, is not fus'd, and in a Word, every burning or kindled Substance, such as the Moxa, the woolly Substance which adheres to the Leaves of Mullein, Cotton, Hemp, and Wood, which are applied in that particular Form, which best suits the Place on which their Operation is intended. These actual Caustics are, by some, peculiarly call'd Cauteries, and are generally us'd of Iron. Hence *Celsus*, when speaking of the Cauteries of this Kind, calls them *Ferramenta candentia*, red-hot Irons, and these are ignited more or less, according as the Part is to be burned more or less deep. Other Substances are also class'd among the actual Cauteries, such as the Nucleus of the Olive, boiling Oil or Water, and melted Sulphur or Lead; but these are scarce us'd in modern Practice. These Medicines act upon the Part, which they burn into a Crust, first by heating the Humours, which, being rarefied by the great Heat, burst the Vessels which contain them, and, their finest and most aqueous Parts flying off, the Part is left dry and incrustated. *Heister* gives the following Directions with respect to the Use of actual Cauteries. "We are, says he, to chuse an Instrument, which, in Bulk and Figure, is accommodated to the Part affected; and whilst the Patient is preparing for the Operation, and putting himself in a proper Posture, it is to be put into the Fire. We are also carefully to defend the adjacent Parts against the Effects of Adhesion, lest new and unnecessary Pains should be produc'd. And this is the Reason, why, in carious Bones, the Flesh is carefully to be remov'd and press'd back by the Fingers of an Assistant, before the Application of the Caustery. When the Instrument is sufficiently hot, it is to be strongly applied to the Part affected, till the Disorder appears to be entirely extirpated. But that this may be

"done with the greater Success, especially in carious Bones; Cancers, and Effusions of Blood, 'tis necessary to have a sufficient Number of Cauteries in Readiness, that what cannot be extirpated by one, may be eradicated by a second or third."

Secondly, Potential Caustics are the strongest Corrosives, such as Butter of Antimony, Lapis Infernalis, corrosive sublimate Mercury, fix'd and volatile alkaline Salts, Quick-lime, Oil of Vitriol, Spirit of Sea-salt, and Aqua-fortis, all of which may be apply'd, either in the Form of a Poultice, of an Ointment, or with Lint. The Caustics of this Class act by virtue of the acrid Salts they contain, which, being pungent and inciding, destroy the Cohesion of the Membranes which constitute the Vessels; as also in consequence of the Rarefaction they excite in the Humours, by dissipating their fine aqueous Particles, they produce an Eschar, by drying up the Part. And because it is of the Nature of Salts, not to act before Solution, it is requir'd, that potential Caustics should be in a liquid Form; or, if they are solid and dry, it is necessary, that the Part, on which they are to act, should be moist.

Petit, in the History of the Royal Academy of Sciences, gives the ensuing Account of the Operation of Caustics and Astringents.

It may possibly be thought, that what we call Astringents are only Medicines of an emplastic Nature, or so many Plaisters which shut up the Mouths of the open Vessels; but Mr. *Petit*, the Physician, has, by a considerable Number of Experiments, convinc'd himself, that they are real Astringents; and that they constrict the several Orifices to which they are apply'd. They constrict these Orifices, by absorbing the Fluid contain'd in them; which being done, the Sides of the emptied Vessels, by their natural Spring, approach each other; which they can do so perfectly, as even to come into immediate Contact, and thereby stop up the Mouths of the weeping Vessels.

This will appear to be an incontestable Truth, if Astringents, apply'd to Pieces of Flesh, lessen their Bulks; but 'tis certain, that they have lessened their Bulk, if they have diminished their Weight. This Mr. *Petit* found by all his Experiments, excepting a few trivial Circumstances, which we shall not dissemble, and which even confirm the general Reasoning. He always took the same Quantity of Beef or Mutton, that is, sixteen Drains, which he put into different Astringents, so as to cover the Whole of it. He always suffer'd it to remain in the Astringent for four Days in a pretty hot Summer. Every Evening he took it out a little in order to weigh it, but put it in again as soon as ever he had done, and by the Sum total of the four different Weighings, he found how much the sixteen Drains had lost.

Those Astringents, which in equal Times diminish most of the Weight of equal Quantities of Flesh, are incontestably the strongest, because they have absorb'd more of its Moisture, dry'd it more thoroughly, and render'd its Spring much stronger. Besides, by considering what their Effects have been, whether greater or less, during every one of the four Days their Action lasted, we may be enabled to form a Judgment of the Quickness or Slowness of this Action.

There is still a Circumstance of Importance to be adverted to, and that is the Corruption or Non-corruption of the Flesh, which is to be judg'd of by its Smell. The Corruption proceeds from a Disunion of the Principles, which form'd the Particles, or minute constituent Parts of the Flesh. Humidity favours this Disunion; Drying and Constriction are opposite to it. Hence it plainly follows, that a good Astringent ought to leave the Flesh, if possible, dry, and without a disagreeable Smell.

There are Astringents of three Kinds; Earths, as the Boles, seal'd Earth, Plaster of Paris, and Lime. Secondly, The Juices of Plants, or Gums and Resins, as the Juice of Aloe, and of the Egyptian Thorn, Storax, Benjamin, and Gum Arabic. Thirdly, Salts, as Sea-salt, Alum, and the Vitriols. We may add to these a fourth Sort, with which the Animal Kingdom supplies us, as the Spider's Web, Crabs Eyes, and others of the like kind. Upon all these Sorts of Astringents Experiments were made by Mr. *Petit*, and their Effects compar'd in a large Detail, of which we shall only mention the general Result.

All Astringents commonly act more forcibly during the two first Days, than they do on the two following ones; and more on the very first, than on the second Day. Their Action is generally diminished, rather than increas'd, by Time.

The strongest of the earthy Astringents took only five Drains from the sixteen Drains of Flesh.

They always leave it with some Degree of a disagreeable Smell, which is still lessen'd in proportion to the Weight they have diminished, or, which amounts to the same, the Quantity of Humidity they have absorb'd.

Vegetable Astringents are generally more strong than those of the earthy kind. A Gall absorb'd six Drains and nineteen Grains of the Humidity, without leaving any bad Smell about the

the Flesh; a Case not very common with this Species of Astringents.

All Gums are great Astringents.

Saline Astringents have generally no more Force than the best of the Vegetable Kind; but yet surpass them in point of Goodness; that is, tho' they absorb no more Humidity, yet they more effectually preserve the Flesh from Corruption, and scarce ever leave it ill-smell'd. Practice has also added her Sanction, and declar'd in Favour of Vitriol.

These saline Astringents have a Property peculiar to themselves, which seems opposite to the Properties of all other Astringents; for they often augment, rather than diminish, the Weight of Flesh; but it is to be remember'd, that this only happens during the last Days, and that they always begin to act by diminishing the Weight. After they have absorb'd a Part of the Moisture of the Flesh, this Moisture, with which they are impregnated, dissolves some of their Salts; and these Salts, being put into Motion, and supported by this Vehicle, enter the Flesh, join with it, and augment its Weight. Every body knows that Salts prevent Corruption; thus these saline Astringents, not only dry the Flesh like other Astringents, by drawing forth its Moisture, but they likewise embalm it, as it were, with a foreign Matter; but they necessarily require a certain Time before they can furnish that Matter, after which it is easy to see what will happen, according as they shall yield more or less Moisture than they absorb'd.

We may also perceive, that this Accident cannot happen, but when the Salts are not much entangled, but are dispos'd to a free and easy Disengagement of themselves; for we have not here a Principle sufficient for a strong Action, since we have only the Moisture of the Flesh, and of a Flesh too that is destitute of Life. The same Astringents would act much more forcibly upon the Parts of a living Animal, which are animated and actuated by their natural Degree of Heat.

Acid Spirits, such as those of Salt and Nitre, Oil of Vitriol, for Mr. *Petit's* Curiosity led him to try every thing, would in a manner boil Flesh, and reduce it to a Paste, if they were us'd pure, and without Moisture: They must, therefore, be lower'd and weaken'd by a great deal of Water, and then they are observ'd to augment the Weight of the Flesh.

As to Caustics, when Fire is apply'd to the open Extremity of a Vessel, its Sides, as soon as they feel it, retire, shrivel inwards, approach so near each other, as to come into Contact, and by that means stop up the Vessel. The external Parts of these Sides, which suffer the Action of the Fire, feel its greatest Force, because they are most expos'd to it; by which means their Texture is totally alter'd, their Fibres destroy'd or confounded to such a Degree, as that they are now no more than a kind of shapeless Callus, which has no Connection with the animal Life; a dead Flesh, which, being independent of every other Part, very soon falls off of itself, and is call'd an *Eschar*.

Hot Iron, melted Lead, and boiling Oil, may be employ'd; but, as they are very painful, other Substances have been found out, which produce the same Effect, but in a milder way; because, without being actually made hot, they contain a latent Fire, which will in time display itself. These are call'd potential Caustics, in Contradistinction to those of the actual Kind. Oil of Vitriol, Spirit of Nitre, and Aqua Regia, are potential Caustics in a liquid, and the Lapis Infernalis is one in a solid Form.

The subtle or ethereal Matter, or, as other Naturalists call it, the Matter of the Fire, makes up all Caustics, as well actual as potential, but with this Difference, that in the potential ones, which are originally made by Fire, the Fire for the most part cuts out certain Passages and Roads for itself, which it again takes as soon as it is agitated, and put in Motion: Whereas, in Caustics of the actual Kind, the Fire does not make itself Roads or Passages which remain; for which Reason, when they are cold, they retain no Traces of the former Action of the Fire, and can only produce their Effects when they are hot or burning.

The natural Heat of any living Part, to which a potential Caustic is apply'd, join'd to its Humidity or Moisture, dissolves and puts in Motion the active Salts of the Caustic. The ethereal Matter which had heretofore lain in a manner dormant, begins to circulate with all its Vigour, in the Roads which it had before struck out for itself; and thus becomes equivalent to an actual Fire, without the same Excess of Impetuosity.

It is a Confirmation of this Theory, that potential Caustics do not act forcibly enough upon dead Bodies to produce that *Eschar*, which is their last Effect upon living Bodies. Carcasses retain no longer that Degree of Heat which is necessary to produce a great Motion in Caustics. *Van Helmont* was the first who asserted this Fact, which Mr. *Petit* afterwards proved by Experiments, which set it in a fuller and more open Light.

He distinguishes potential Caustics into three Sorts. The first act only on Flesh when the Skin is taken off from it. The second on both Skin and Flesh. The third upon the Skin on-

ly. The two first are *Escharotics*, or induce an *Eschar*; the third produces no such Effect. Hungarian or Cyprus Vitriol, Arsenic, corrosive Sublimate, &c. are of the first Kind. Aqua Regia, Oil of Vitriol, Lapis Infernalis, &c. belong to the second Class. Those, in fine, of the third and last Sort, of which Cantharides are the most us'd, deserve only the Name of *Vesicatories*, on account of the Bladders or Vesicles they raise on the Skin. They rarefy both the Lymph and Air contain'd in those little Vessels of the Skin, whose Orifices terminate at the Epidermis, or Scarf Skin, which covers them. This violent Rarefaction raises the Epidermis, under which a Cavity is form'd, which is forthwith fill'd with dilated Air, and the Lymph pour'd forth from those little Vessels which are now burst asunder. The Epidermis, or Scarf Skin, being separated from the true Skin, soon becomes dry, and easily comes off, which is equivalent and analogous to *Eschars* produc'd by other Caustics. *Hist. de l'Acad. Royale, A. 1732.*

Potential Caustics are distinguish'd from one another, not only by their Salts, which are more or less acute, and consequently do more or less, more speedily or slowly, penetrate and dissolve the Texture of the Solids, but also with respect to the Nature of the Salt, which in Solution acts upon the Humours, either by condensing or dissolving them; to say nothing of the Quantity in which Caustics of this Kind are apply'd, tho' the greater their Quantity, the longer they continue their Action, and the more they extend it both in Breadth and Depth, till all the saline Substance be perfectly dissolved, and sufficiently diluted, by the Humours of the Vessels, or become absolutely inert; for it is to be observ'd, that solid Caustics act more slowly, but longer, than liquid. *Ettmuller, Tom. 2. says, "That potential Caustics are distinguish'd, with respect to the Nature of their corrosive Salts, into alkaline and acid. To the first belong all lixivial acrimonious Salts, and among these, in a more particular manner, the coagulated Salt, obtain'd from the Lixivium of Soap-boilers; as also those Salts, which, besides other Substances, have quick Lime for an Ingredient. This Species of Salt, preserv'd in a warm and dry Place, that it may not be dissolv'd by the Moisture of the Air, is highly extol'd by Ludovici, who informs us, that no Caustery is either more safe or efficacious. These alkaline Caustics, however, are not so properly and commodiously us'd, because, by their Dissolution, they putrify the Part to which they are applied, and soon after produce a black Spot, and a fetid Crust, resembling a beginning Gangrene. Acid Salts, on the contrary, more or less concentrated, operate more speedily, since they only corrode, and by corroding wound the Part more deadly: Hence they induce first a red, and then a white Eschar. But, among these Acids, the most considerable is Silver dissolv'd in Aqua-fortis, which, by Inspiration alone, yields a Powder of a whitish dark Colour, call'd Lapis Infernalis, of which the Bulk of a common Pea is to be laid on the Part to be cauteris'd, applying a Plaster over it. Thus this Powder, in consequence of the Aqua-fortis, concentrated in it, begins to operate like the Biting of Fleas. This same Powder is to be used for the fungous Excrecencies of Ulcers, which it mortifies and corrodes. The best Caustery, next to this, is Butter of Antimony, inclosed in the Cavity of a Quill." Elias Camerarius, in Eph. N. C. D. 3. a. 5. o. 212. orders the Lapis Infernalis to be prepar'd in the same manner directed by Ettmuller. The Emplastrum Causticum Andromachi is the Lixivium of Soap-boilers, with the excorticated Grains of Rice and Wheat dissolv'd in it. Heurnius bestows uncommon Praises on his Caustery, made of a Lixivium of Soap alone, boil'd into a black Substance, and then calcin'd into a Stone. In order to make the Mineral Caustic of Angelus Sala.*

Take of the strongest Aqua-fortis four Ounces, and of the Oil of Vitriol one Ounce, place them in a Matrafs in Balneo Mariae, and distil off the Phlegm; add of sublimate Mercury, or Sal-ammoniac, two Drams. The Solution obtain'd is to be kept in a well-stopt Phial for Use.

This Preparation is said to be a Specific against pestilential Tumors, Cancers, callous Fistulas, Gangrenes, and all fungous Excrecencies of the Flesh. It is to be applied upon a Pledget, and where 'tis necessary, a defensive Plaster must be laid round it. It is commended, because it quickly, and without great Pain, produces a soft and easily separable *Eschar*. *Tenzelius* thinks the arsenical Magnet deserves the same, if not greater Encomiums, because it operates without producing an Inflammation or painful Corrosion; and that, for this Reason, it is highly proper for Patients of Distinction, or of a delicate Turn. But, according to *Bartholine*, the Caustics prepar'd of sublimate Mercury are highly dangerous, and produce Inflammations and Pains of the Parts, so that in the Hands of a great many Surgeons they produce terrible Effects, unless when corrected with Camphire. The same Author, in his *Historia Anatomica, Cent. 5 Hist. 36.* informs us, that the Danish Surgeons

geons think the Ashes of the *Fraxinus*, or common Ash-tree, a highly safe Ingredient in their Cauteries. These Ashes they prepare in the following manner :

Removing the external rough Bark, they take the middle Bark, which, when cut in Pieces, they dry and burn. The Ashes, when pass'd thro' a Sierce, they put into a small Bag of worn Linen Cloth, which they immerse in warm Water till it is thoroughly warm: After this the Bag is immediately applied to the destin'd Part, and cover'd with Plaisters.

The Operation is ended in the Space of four or five Hours, and the Eschar falls off in as many Days. No Pain, nor any other Symptoms, are produced. But this Cautery is attended with two Disadvantages; the one is, that the Bark ought always to be recent; and the other is, that it dissolves and spreads far. A Cautery, prepar'd of Aqua-fortis and Orpiment, is so efficacious and commodious, that I have been surpris'd, says *Bartholine*, at its Operation. Quick-lime also, when it can be had, operates as a Caustic, if it is mix'd with Soap, and included in a perforated Piece of Leather. They who desire a Caustic in a dry Form, may commodiously use one prepared of a Piece of Silver, dissolved in Aqua-fortis, and evaporated in a proper Vessel over a Fire. Other Cauteries consist of common Coal; but the Pain, attending the Use of these, is to be dreaded. *Bartholine's* potential Cautery, which acts speedily, and without any considerable Pain, is, in his *Cista Medica Hafniensis*, order'd to be prepared in the following manner :

Take of white Tartar, calcin'd, one Part; of the Ashes obtain'd from the Stalks, Trunk, and Knots of the Oak, each two Parts: Dissolve them in a sufficient Quantity of the Lixivium of black Soap, and make into a Stone, according to Art.

Barbette, in his *Surgery*, extols his Cautery, which operates without exciting any Pain, and which is prepared in the following manner :

Take of crude Sulphur, white Arsenic, and crude Antimony, each two Ounces: To the Sulphur, melted by itself over a gentle Fire, and stir'd with a Spatula, add the Antimony and Arsenic, reduced to a Powder. Let them be mix'd till they incorporate with the Sulphur, and become red. Then take of this Mixture, one Ounce; and of the Caput Mortuum of Vitriol, half an Ounce: Mix up into a Powder, to be six times wash'd with Spirit of Wine, and dry'd for Use.

According to *Hoffman*, in his Annotations on *Poteries*, the best and safest potential Cautery is the Infernal Stone. Liquid Cauteries, such as the Butter of Antimony, and concentrated Spirit of Vitriol, operate less successfully, by reason of their diffusing themselves unequally. So various are the Materials of potential Cauteries, and the Methods of composing them so different, that it is no Wonder, if many, observing the happy Effects of their own Compositions, keep them as Secrets to themselves; since human Nature has, in all Ages, been so mercenary, that Men keep the Arts, in which they excel others, as so many Mysteries. There are various Forms of potential Cauteries, exhibited under different Titles, in the several Dispensatories; but these we shall not here enumerate, because any one may have recourse to them at Pleasure.

The celebrated *Heister*, in his *Surgery*, gives Directions for making an excellent caustic Stone, in the following manner :

Take of Pot-ash, and the strongest Quick-lime, equal Quantities, of each, for Instance, six Ounces; or, of Pot-ash, one Pound, and of Quick-lime, six Ounces; which, when pounded separately, are to be mix'd. Then, putting them in a large Glass or Pot, a large Quantity of Water is to be pour'd upon them; and they are to stand for an Hour or two, till they are sufficiently incorporated with each other: Then what is colligated is to be separated from the subsiding Mass, strain'd thro' a Linen Cloth, and condensed in an Iron Vessel over a Fire. After which this consistent Mass, being put into a Crucible, is to be fused over a brisk Fire, till it assumes the Consistence of Oil. Then it is to be pour'd into a Vessel or Mortar; and, before it is entirely cold, it is either to be cut in Pieces, or broken, and kept for Use, in a close stop'd Glass, in a dry Place.

From this Glass we take what is sufficient for opening an Abscess, and apply it either whole, or grossly pounded in a Mortar, securing it on the Part affected. If any moist Substance is laid upon the Caustic, it generally operates, and corrodes the subjacent Parts sooner, in the Space of an Hour or two, for

Instance; but, when it becomes old, it generally loses its corrosive Quality. *Albucaasis*, in the first Part of his *Surgery*, and the forty-third Chapter *de Methodo Cauterizandi in Sciatica*, orders a potential Caustic in a liquid Form, under the Name of a *Sharp Water*, to be prepared in the following manner :

Take of Alkali, or the fix'd Salts of Kali, and of unslaked Lime, each equal Parts: Triturate both, and put them in a new Pot, whose inferior Part is perforated with a small Hole; then place under the Bottom of the Pot another glaz'd Pot, and pour upon the Alkali and Lime as much fresh Water as may rise a Digit above them: Then compress them well with your Hand, and leave the Pot till the *Sharp Water* be descended into the lower Part of the glaz'd Pot. After this, take and pour all the Water upon more Lime, and let it distil anew. By this means you will obtain a Water of a very strong Sharpness, of Use in many Operations of Medicine, and in cauterising of Amputations.

The *Causticum Holofericum*, in the *Pharmacopœia Brunsculensis*, is prepared of

Ashes of the Stalks and Pods of Beans, and Ashes of the Wood of Oak, of each one Pound and a half; Pot-ash, half a Pound; Quick-lime, two Pounds; and Roch-alum, two Ounces: Mix the Ashes and Pot-ash, and put them into a large glazed Vessel, full of clear River Water, in which slake the Lime. Let them macerate for two Days, stirring them now-and-then with a Stick, that the Lixivium may be the more acid; and then add the Roch-alum pulverized: This being dissolved, strain it thro' a Linen Cloth so often till it be sufficiently clarify'd. Boil this Lixivium in a glaz'd earthen Pot, over a pretty large Fire of Coals, continually stirring it, till the Humidity of the Water be almost evaporated: Towards the End, let the Fire be suffer'd to decay, till the Lixivium concretes into a saline Paste, which is to be made into little Balls, of the Bigness of a Lentil or Pea, to be used in cauterising: Let them be reposit in a warm Place, in a Glass Vessel, well stopp'd, that the Air may not melt them.

The Cauterium *ιλοσνεμὲν* (*Holofericum*) of *St. Ambrose*, as it is call'd, in *Bauderon's Pharmacopœia*, is made of Ashes of the Stalks and Pods of Beans, and Ashes of the Wood of Oak, each three Pounds; with four Pounds of Quick-lime. These two last Cauteries take their Name (*Holofericum*, purely filken) from the Gentleness of their Operation, which is said to be almost without Pain; whence also they are call'd, in *French*, *Cauteres de Velours*, "Velvet Cauteries." One like these, according to *Cardan*, quoted by *Schoetus* in his *Jocoseria*, is made of a very strong saponaceous Lixivium, Quick-lime, and Oak-ashes, with an Addition of Vitriol. See *Cardan de Subtilitate*, Lib. 7. How to prepare one with less Trouble, call'd the *Indolent Cautery* of *Platerus*, of only a saponaceous Lixivium and Quick-lime, see under *CAUX*. It is a great Question, says *Wedelius*, in his *Medicamentorum Facultates*, whether there be an indolent Cautery; and, comparatively speaking, it may be answer'd in the Affirmative; for Cauteries which are of an active Quality, and speedily corrupt the Part, excite little or no Pain; such is a Cautery of Crystals of Silver, prepared with Aqua-fortis. We experience the same thing in our Bodies, not only externally in a Gangrene and Sphacelus, where, on the Principles of Mechanics, we may very rationally suppose the Action of some such caustic and corrosive Salt; but also internally, in the indolent Dysentery, where there is a sudden Accession of Acrimony to so high a Degree, as to cause a total Deprivation of Sense, in which Case nothing but absolute Death can be expected.

The Lunar Caustic is in the *Edinburgh Dispensatory*, and, by *Boerhaave*, call'd *Lapis Infernalis*; for the Preparation of which see the Article *ARGENTUM*. But the *Lapis Infernalis*, or *Septicus* of the *London Dispensatory*, is a very different Thing, and order'd to be thus prepared :

Let the strong Lixivium, which is used in making Soap, be boil'd in a Pan to the Hardness of a Stone; taking care, however, that all the Liquid does not exhale, and dry away: When it is cold, cut it in small Pieces, and keep it in a Glass, close stop'd, for Use.

Another Way of making the *Lapis Infernalis* is this :

Take of Vitriol, calcined to Redness, two Ounces; of Sal Ammoniac, one Ounce; of Tartar, calcined to a Whiteness, and Quick-lime, each three Ounces: When they have been melted together, pour upon them the Lixivium of Fig-tree, Spurge, or Soap-lees, and pass it thro' them till almost all the Matter is wash'd away with it. Let the

Strain'd Liquor be boil'd, in an earthen Vessel, to a Consumption of its Humidity; and what is left be put into a Glass, well stopp'd, to be kept for Use. *London Dispensatory.*

Boerhaave's Method of preparing the *Lapis Septicus*, or Potential Caustery, is somewhat more distinct.

Take Lime, made of burnt Stones, that is quite fresh, very dry, solid, not affected by any Moisture, nor as yet cleft asunder; of this put one Part into a clean Iron Pot, and lay upon it two Parts of the purest Pot-ash, in such a manner, that the Lime may be cover'd all over with this Alkali. Let these be then left together in the Pot, with a Cloth flung over them, till the Lime begins to crack, and split asunder. When you observe this, add four times their Weight of Water, and boil them for the Space of one or two Hours. When the Fæces are subsided, pour off the Liquor, and let it be strain'd thro' *Hippocrates's* Sleeve, made of thick Linen Cloth, till it at last passes thro' as limpid as pure Water. Put this Lixivium into a large Iron Ladle over the Fire, and, taking care that it don't boil over, evaporate it till it becomes perfectly dry. Then increase your Fire till the Ladle grows red-hot, and, as soon as ever the Salt has done smoking, it will melt. When it is in this State, pour it out upon a hot Brass Plate; and, whilst the Matter continues very soft, make it smooth, and cut it into such Pieces as are fit for surgical Uses. Let these be put into a very dry, hot, strong Glass Bottle, by the Fire-side, and instantly stop it with a choice dry Cork: Let the Mouth of the Bottle be then dipt in melted Pitch, and be very accurately secured, that no Moisture may possibly get thro' it, which is attracted by the Alkali, prepared in this Manner, with an incredible Power, even thro' Corks and Bladders: But, if you observe these Cautions, it may be kept pure for Years. When you want to take a Bit out for Use, it must be done in a dry hot Air, or near a good Fire, and then the Bottle must be immediately stop'd again, as before.

R E M A R K S.

1. This Salt, from the truly igneous Virtue of the Lime attracted into the fix'd igneous Alkali, acquires a most acute and quick corroding Power, which was neither in the Alkali nor the Lime, when they were separate. The Acrimony of it exceeds that of all other Salts hitherto known; for if you cut a round Hole in a sticking Plaster, and apply this to the human Body, and then put a Bit of this Salt upon the Skin in the Vacuity, and cover it over with another Plaster, that it may not fall off, it will, in a very short time, consume the Skin, and the Membrana Adiposa; and hence it is valued by the Surgeons, for what they call their Potential Caustery, above all others.
2. If almost any Parts of Animals are thrown into a fresh Lixivium of this Salt, whilst it is boiling, they will, in a short time, be converted into a liquid Matter; as will likewise most vegetable Substances, and the Sulphurs of Fossils. A poor Man, unfortunately falling into a boiling Copper of such a Lixivium, had his Clothes, and all the soft Parts of his Body, consumed, so that there was found nothing of him left, but his Bones: Hence this Lixivium is of incomparable Service, where the Parts are gangrenous to a great Depth, and almost sphacelated, as it disposes them to a happy Separation; but it requires the prudent Application of a skilful Surgeon.
3. This Salt melts with a pretty moderate Fire, and then it runs like Wax. By this easy Fusion, therefore, it is capable, without the Assistance of an intense Fire, of dissolving a great many Bodies, which, otherwise, are not dissolved without Difficulty, as Myrrh, Gum Sandarach, and others. The ancient Chymists wrote a great deal about the Art of making Alkalies melt in the Fire like Wax; and hence they called the Operation *Inceration*. Might they not mean the Process we have just now describ'd? Certainly the Salt, produced by it, has this Property.
4. If Lime is first slaked, or extinguish'd, either in the Air, or with Water, as almost all old Lime is, or is converted into a fine Powder; then, if it is thus managed with a fix'd Alkali, it will not produce this acrid Kind of Salt. This Salt, when it is once melted in the Air, or is kept by a good while, not carefully stop'd, loses this singular Virtue; and then it deposits a large Quantity of inactive stony Fæces, which did not appear before: Hence, therefore, we learn, that Fire communicates to inert Stone, and Shells of Fish, an Acrimony, that is not easily procurable in any other manner. When a native vegetable Salt, therefore, from a natural, soft, saponaceous one, is converted into a fix'd Alkali, does it not acquire this Acrimony from the Fire?

5. The Salt, thus prepared, obtains this singular Property, that it becomes vastly disposed to a Union with the express'd and distil'd Oils both of Vegetables and Animals, and thus to form a Soap. And this seems to arise from its being render'd so exceedingly penetrating, that it becomes capable of intimately dividing these Oils, and uniting with them, which, without the Assistance of this sharp Lime, can scarcely be effected conveniently: Nor, without the Lime, would the Alkali run so easily in the Fire; for that melts with a great deal of Difficulty.

The Use of Causteries, especially actual ones, is of very great Antiquity, as we may learn from *Hippocrates*, who relates, that, among the *Scythian Nomades*, may be found many burnt in their Shoulders, Arms, Wrists, Breasts, Hips, and Loins; that, living in a flat Country, abounding with Meadows, in a humid Air, and drinking the Water of dissolved Ice and Snow, and, besides, using no bodily Exercise, they become unable to bend a Bow, or throw a Dart, by reason of the Weakness of their Shoulders, occasion'd by an Excess of Moisture; but after they are burnt, and the Joints by that means freed from their superfluous Humidity, they grow more robust in Body; and stronger and more pliable in their Joints. We read, in the same Author, that it is customary for the Wives of the *Scythian Sarmatæ*, who live about the Lake *Maotis*, to burn off the Right Breast of their Female Infants with a Copper Instrument, heated in the Fire; lest it should be a Hindrance to them, when adult, and engaging with the Enemy on Horseback, in drawing the Bow, and throwing the Dart. See *Hippocrates of Air, Water, and Situations*, under our Article AER. What *Herodotus* relates of the *Libyans*, a Nation of *Africa*, is also worthy of Observation. The *Libyans*, he says, who live by feeding of Cattle, have a Custom, whether observed by all or most of them I am not certain, which is to burn the Veins on the Crown of the Head of their Sons, when four Years old, with greasy Wool: Some burn the Veins of the Temples. The Reason they give for this Practice is to prevent Defluxions of Phlegm from the Head; and they attribute their healthful and sound Constitutions to the Observation of this Custom; and, indeed, the *Libyans* are, of all People that are known to us, the soundest in their Bodies. If the Boys be seiz'd with Convulsions, under the Operation, they have found out a Remedy for them, which is, to sprinkle on them the Urine of a Goat. *Herodotus*, Lib. 4. *Helmout*, therefore, seems to be in the right, when he says, that Catarrhs invented Causteries; but he is mistaken, when he subjoins, that Causteries were an Invention of the Schools of Physicians, saying, "What God has made entire, that it might be in its best and most perfect State, Physicians have attempted to rectify by inflicting Wounds, and keeping them open; so that to be often wounded, and to preserve a Dissolution of the Continuity of Parts, is a Precept for Health among the Schools. It is a Wonder, that Physicians have not prescrib'd Wounding as one Means of Health, as well as Causteries, which are constant and durable Wounds." Among the *Turks* and *Arabians*, when they are affected with a Pain of the Head, or a Defluxion upon any Part of the Body, they cauterise with a hot Iron, Tinder, or burning a Linen Cloth, without consulting a Physician, as we are inform'd by *Belon* in his Observations, and in *Thevenot's* Travels. It was an usual Practice in *Egypt*, among the *Egyptians*, and especially the *Arabian* Horsemen, who lived in Tents, and others who inhabited the Deserts, in the Time of *Prosper Alpinus*, as himself observes in his *Medicina Aegyptiorum*, to apply a Caustery for the Cure of various Diseases. You may see Multitudes, he says, who threw, by their Eschars, that they have been cauterised in many Places; as, for Instance, in several Parts of the Head, as the Sin-ciput, Occiput, and other Parts, on the Temples, behind the Ears, on the Neck, Breast, Sides, Hypochondria, under the Navel, on the Spine of the Back, and the Articulations of the Arms, Hands, Legs, and Feet. And he assures us, that all the Inhabitants of that Country regard Burning as a choice Secret in the Cure of many Diseases, which resist other Remedies. But they make no Use, he says, of Iron, Gold, or any other heated Metal, or Box-wood, for this Purpose, but Cotton, or Linen Cloth, set on Fire. Thus, when they intend to cauterise any Part of the Body, they take a Piece of Linen, a Cubit long, and three Fingers in Breadth, and a due Quantity of Cotton, which they roll up in the Linen, and tie with a silken Thread, in the Shape of a Pyramid, the broad End or Base of which they apply to the Place which is to be cauterised, taking care that it shall adhere well to the Skin: They then set Fire to the Head, or lesser Extremity, and suffer it to burn till the Linen and Cotton be totally consumed, continually touching the Flesh round about with Iron, all the while the Skin is burning, in order to prevent an Inflammation from the Heat; observing also, in the making up of this pyramidal Mass, to leave a Hole or Passage in the Middle, for the sake of ventilating the Fire: After Burning, they apply Marrow of Bones to the Place till the Eschar falls off. The Use of this

Remedy

Remedy is very common in this Country, for many Sorts of inveterate Pains in the Knees, and other Joints and Parts of the Body, which owed their Rise to a Defluxion of cold Humours, or a simple cold Distemperature, or a flatulent Spirit, either generated in the Part itself, or translated thither from elsewhere. This Way of Burning or Cauterising cures these inveterate Pains, corrects every Imbecillity of the Parts, dissolves gross Humours, discusses Flatulencies, heats the Joints, and, by potently drying, corroborates them. It is no Wonder, then, that they use this Remedy with good Success, in all obstinate Pains of the Joints, and especially in the Sciatica; in which Case they cauterise often not only upon the Joint, but also upon the Thigh. It is of no less Service in the Gout in the Feet or Hands, before the Generation of Tophi; for they cauterise the Joints, and the incumbent Veins, when the Pain seizes the Joint of the great Toe; and cauterise the Joint between the Thumb and fore Finger, by which means the Passages are render'd too narrow for the Flux of the Humours to the infirm Joints, and consequently the Patient is less subject to the Gout. Thus the *Egyptians*, by cauterising, correct the Laxness and Debility of the Joints, and procure Strength to them, by which they are enabled to resist the Influx of the Humours: Cauterising, therefore, is a most approved Remedy to be applied to all Parts, which are affected with Defluxions of Humours. But it is the Custom to cauterise not only the Parts molested with a Defluxion, but also the Parts from which the Humours are transmitted; for which Reason they use frequent Cauterisings of the Head, in all Defluxions or Distillations, as they are call'd, from that Part upon the Breast or Lungs, cauterising the Sinciput, the Crown of the Head, the Occiput, and behind both Ears. They practise the same in long-continued Lippitudes, and other inveterate Distempers of the Eyes, in Epilepsies, Palsies, Apoplexies, Vertigos, Madness, Stuffings of the Head, Stupor, Decay of Reason, and immoderate Sleep. They cauterise the Temples under violent Pains of the Eyes, Ears, and Teeth, occasion'd, as they suppose, by Distillations from the Head. They cure periodical Pains of the Teeth, with Laxness and Putrefaction of the Gums and Teeth, by Cauteries, applying them both to the Parts whence the Humours are transmitted, and to those which, by their Weakness, are dispos'd for their Reception. For this Reason they find cauterising the Breast to be of Service in an Asthma proceeding from cold, gross, and viscous Humours molesting and clogging the Lungs and Aspera Arteria; and for such Patients as are affected with malignant Distillations from the Head upon the Thorax, or Spitting of Blood, from an Erosion of some Vein by the same Humours, they cauterise both the Head and Breast; for those who labour under a Phthisis and Suppuration, whence they are call'd *Emphyi*, they only cauterise some Parts of the Breast. Many, labouring under a Suppuration, have been restor'd to Health by three or five Applications of the Cautey to the Breast and Back; for the Pus continually discharged itself by the Wounds till it was all evacuated; and this Method is none of the most dangerous, because the Pus is discharged slowly and insensibly. *Dominicus a Rege*, aged forty Years, living in *Cairo*, was affected many Years with a troublesome Asthma, and had try'd a Multitude of Remedies to no Purpose; at length, being almost exhausted, and coming into a Consumption, he resolv'd, as his last Refuge, to have recourse to the *Egyptian* Remedy of cauterising the Breast with a triple Cautey: After the Operation, he kept the Ulcers open for a considerable time, and, by that means, recover'd his Health. They use the same Remedy for a cold and moist Stomach, which is molested with Flatulencies, and a Defluxion of Humours: They cauterise also very successfully in case of an indurated and refrigerated Liver and Spleen. In a Dropsy they cauterise in many Parts, particularly in three Places under the Navel, keeping the Ulcers open, that the Water may discharge itself that Way; others apply a Cautey to the Stomach, Spleen, and Liver, as well as under the Navel. In most Cases they use Cauterising as aforesaid; tho' they often apply also Corrosives, or potential Cauteries, some using them under the Ankle-bones, others above the Knee, both on the Inside and Outside, keeping the Ulcers open for some time. Some cauterise or vesicate the Legs in the same manner, and from the Vesicles produce Ulcers, by which they gradually make a thorough Evacuation of the Water.

By this manifold Cauterising they cure the Ascites, with the Hernia aquosa and carnosia. In hydropical Cases it cannot seem strange, that the Patient should receive Benefit from Cauteries, both actually and potentially drying, because the Water is, by such means, consum'd; but I have often seen the Hernia carnosia cur'd by them, as well as all sorts of cold cedematous and scirrhus Tumors; and I am assur'd, that even a Scirrhus, which is generated of gross Phlegm, is remov'd by the same Remedy. In Pains of the Back, Loins, Neck, and of all the Joints, the common Remedy is a Cautey, apply'd to the Spine of the Back, Loins, Neck, or other Parts where the Pain is seated. For Swellings, proceeding from crude and pituitous Humours, a Cautey is their chief Remedy; which they assert also to be proper for the Poor, because it is a speedy Cure for

many Diseases. To conclude, Burning or Cauterising is the boasted Remedy of these People, which they prefer, before many others, in the Cure of inveterate Diseases. Thus far *Alpinus* of the practical Use of Cauteries in *Egypt*. Among the *Arabians*, the Use of actual Cauteries is very common for those Parts of the Body in which they feel any Pain, as we are inform'd by the Chevalier *D'Arvieux*: And *Kaempfer* writes; that the *Chinese*, *Japones*, and other *Asiatic* People, make use of actual Cauteries in almost all Distempers. These Cauteries are of various Kinds, according to the Difference of the Disease; but they reject the Use of hot Irons: The same Author shews us, that, among some of these Nations, Cauterising is of very antient Date, and was practis'd before the Invention of Medicine itself, or any other Part of Surgery. The Matter with which they cauterise is generally the *Moxa*. This they make up, with their sore Fingers, into the Shape of a Cone, about an Inch in Height, and somewhat less at the Base, which they apply to the Part affected; sometimes wetting it with Spittle, to make it stick the better: Then, with a very slender burning Stick or Rod, they set Fire to the Top of the Cone, and suffer it to burn out; after which they apply another to the same Place, and repeat the Operation as often as the Intention of the Physician, or Operator, shall require. The illustrious Author acquaints us, that he has seen no Part of the Body more mark'd with these Combustions of Moxa than the Back, on both Sides of the Spine, down to the Loins, so that you would swear, that some of their Backs, especially in *Japan*, had been under the Executioner's Lash, so many Marks, and deep Eschars of Ulcers, were there to be seen on both Sexes. *Kaempfer's Amœnitates Exoticæ*. Nor were the *Americans* ignorant of the Use of actual Cauteries for Pains in any Part of the Body; for they cauteris'd the Part affected with a burning Piece of Wood. In *Tuscany*, and some other Countries of *Italy*, as *Mercurialis*, in his *Paræ Lethionæ*, informs us, it is an antient Custom to cauterise the Boys, while sucking at the Breast, or, when a little bigger, with a hot Iron, in the Occiput, as a Preservative against phlegmatic Diseases, and especially the Epilepsy. And *Linnaeus* assures us, that the chief and last Remedy, and which seldom fails, among the Inhabitants of the *Swedish Lapland*, who have no Physicians, for all Pains, which are not attended with any remarkable external Inflammation, as the Head-ach, Tooth-ach, Pleurisy, Colic, and Pain of the Back, is an actual Cautey, made of the Wood of an old Birch-tree.

From the Premises we are doubtless convinc'd, that the Method of curing many Diseases by Cauteries has been approv'd by the Experience of many Nations, for a long Course of Time, from the remotest Ages. From Men the Use of the Cautey seems to be transplanted to brute Animals, and to make a Part of that Care and Medicine which they require, if we may reason from *Vegetius*, who, *Lib. 1. Cap. 28.* calls the Cautey *Novissima Cura*, the last Thing to be try'd upon a diseased Animal, the Benefits of which Operation I shall here transcribe from that Author; and tho' they are spoken with regard to Quadrupeds, I doubt not but they will be agreeable enough to the Sentiments of those who have dedicated their Time and Service to the Cure of those Distempers which afflict the human Body. "Burning," says *Vegetius*, "constringes Luxations, "attenuates Inflations, dries up Humidities, dissolves Coagulations, extirpates Cancers, eases inveterate Pains, restores those Parts of the Body which are alienated from their natural State, let the Cause be what it will, to a due Order, "and puts an effectual Stop to the Growth of all Excrecences: "For, when you have made a Breach in the Skin with the hot Iron, every Corruption is concocted and maturated, and, "being dissolv'd by the Benefit of the Fire, is discharg'd, with the Humour, through the Passages which are made, by which "means the Disease is cured, and the Pain removed; and "when afterwards the Wound is cicatriz'd, the Place is render'd more tense and robust, and the Skin almost indissoluble."

If we consult those Authors who have spent their Time to very good Purpose in furnishing themselves with an History of Medicine from the Writings of the Antients, we shall have little Room to doubt, that Cauteries were frequently used, in many Distempers, by the antient Physicians of all Sects, *Greeks*, *Latins*, and *Arabians*, from whom the Knowledge of Medicine was convey'd down to us. *Barchusen*, in his *Collecta*, says, that of Physicians who used Burning in the Cure of Diseases, the first seems to have been *Euriphon Cnidius*, whom *Cælius Aurelianus* reckons among the most antient Inventors of Medicine; and it is suppos'd, that he was the Author of the *Cnidian Sentences*, mention'd by *Hippocrates*. This Person lived an Age before *Hippocrates*, or, at least, was cotemporary with him, but older. Thus *Barchusen*. And *Schulzius*, in his *Historia Medicinæ*, rightly observes, that *Hippocrates* was not much apprehensive of Danger in the Use of Cauteries. *Le Clerc*, *Histoire de la Médecine*, p. 472. seems to be of Opinion, that Cauteries were rejected by the Methodics, because according to *Cælius Aurelianus*, they were cruel and superfluous; but that

Author

Author speaks only of a certain Case, which is the Cephalæa, or an obstinate Pain of the Head. But *Celsus* recommends the Use of Cauteries in many Cases. *Albucaſus*, a very eminent Arabian Writer, in his Book of Cauteries, seems to be in a Rapture, when speaking of the divine and secret Virtue of Fire. He gives an Account of fifty Distempers in which they may be of Service, and in which he actually experienc'd the Method himself: And it is certain, that by this Operation, however painful and terrible, great Cures have often been done. He lays down all the Directions for applying them; but he says, that those only who have a good Insight into Anatomy, and know exactly where the Nerves, the Tendons, the Veins, and Arteries lie, should apply them; and, therefore, he advises great Caution in this respect, and relates the History of one who was kill'd, in the Sciatica, for want of this Circumspection, by cauterising the Inslep, and hurting the Tendons there: And for this very Case he describes a Cautery, terrible, he says himself, to behold, and, therefore, not often us'd by him, yet, however, of very great Efficacy; and, accordingly, he recommends it, in Cases of Extremity, to his Disciples. We see how much more familiar the Practice of the Cautery was with the *Arabians*, than even with the *Greeks*; and we may the less wonder at it, since the Way of Burning, by the potential Cautery, had been commonly us'd by that Nation, and had the Name of *Uſſio Arabica* given it many Ages before, as *Dioscorides* informs us in the History of Goats-dung, which was the Material they apply'd. Thus far Doctor *Freind*; from whose Words it appears also, that, in the Use of Caustics, there is need of Caution; for Illustration of which, give me Leave to quote *Albertus Bottonus*, a celebrated Professor of Medicine in the University of *Padua*, in the sixteenth Century, who, in his Book of Womens Diseases, has these Words: Cauterics, says he, are the Materials of a Remedy, which sensibly evacuates, and is indicated by the Humour, which is daily and insensibly generated, and, not having its usual Passage, is preternaturally detained within the Body, and, causing an Alteration in the same, the Symptoms are continually augmented, both in Number and Greatness, till the Physician, finding other Remedies ineffectual, has recourse to Cauterising; by which means the offensive Matter, which was gradually collected, may find a proper Vent by which it may be discharged. Cauterics are of such general Use in our Times, that, in all gross and stubborn Diseases, recourse is had thereto, as to the last and surest Remedy; but as to the Success of such a Practice, let those who have experienc'd it speak for themselves. For my own Part, I am assur'd, that many who have us'd this Method have been so far from obtaining the good Success they expected from it, that they have been oblig'd to relinquish it. Besides, this kind of Remedy cannot be administer'd without Danger, since we know, by sad Experience, that it has frequently occasion'd a Gangrene, and prov'd more fatal to the Patient than the Disease itself could have been. There are various Reasons to be given, why such an extraordinary Method of Cure has been attempted; one of which may be, the Impatience of the Sick, which incapacitates them for attending on the slow and hidden Ways of Digestion by which Nature operates in subduing the Disease. A second Reason, probably, is the Fault of the Physician, who, tho' he ought to regard himself as the Assistant of Nature, neglects to observe her Motions, which, if duly attended to, would preserve him from Error in all his Operations, and direct him in the Way mark'd out for him, and point out the Passages by which Nature attempts to discharge herself of the offensive Matter; and, if such Passages are found to be convenient, she is to be assisted in her Efforts by the Physician: But, by the violent making of unseasonable Breaches and Drains, we often compel Nature not only to an Evacuation of crude Matter, but to discharge it by such Ways as she has neither Ability nor Inclination to attempt. In such a Case we not only impede Nature in rightly carrying on her Operations, and provoke her to an Evacuation before a due Digestion be made, but direct her Course to inconvenient, and oftentimes opposite Places, and by violent Means; and if this be the Consequence, we receive more Injury than Benefit from the Application of a Cautery. Besides, it often happens, that the Physician, who, with all his Art, can do no better, in some Cases, than conjecture, is ignorant of the Situation of the Matter which is to be evacuated; and, if this be unknown, he must, of necessity, be ignorant of a convenient Place by which it may be discharged. Thus, for Instance, if we would apply a Cautery with an Intent to make a Derivation, we ought to chuse a Place near the affected Part; but, if we design a Revulsion, we are to find out a Place more remote, but situated in a strait Direction with the Part affected. But if we have no perfect Knowledge of the Place where the offensive Matter is generated, we must, of consequence, remain in Ignorance of the Nearness and Remoteness, the direct or oblique Distances, of other Places with respect thereto; whence it comes to pass, that the Physician is disappointed of his End, and the Patient suffers double Misery during Life.

By the Accounts of Cauterics which we meet with in Authors, it appears,

I. , That there is scarcely a Disease in which Burning, or the Use of Cauterics, has not, at some time or other, been thought seasonable, as well by Physicians, as by the *Egyptian*, and other barbarous People; with this Difference, that these latter had recourse to Cauterising as a ready and familiar Remedy, but the former never us'd it, before they had in vain try'd other Means. Secondly, That these Nations, and the antient Physicians, except the *Arabians*, made more use of actual than potential Caustics. Thirdly, That Men seem to have been taught the Use of Burning by fortuitous Cases; and that Nature, now-and-then, takes Occasion to invite us to imitate her Work; in Compliance with which, the Physician directs the making of Fontanels, which are no other than artificial Ulcers, and are pretty well procur'd by Caustics. They who recommend Cauterics for the Formation of Ulcers, by whose continual Discharge of purulent Matter Health may be obtain'd or preserv'd, seem to have Nature declaring in favour of their Opinion, when she labours to expel a Disease by spontaneous Ulcers or Abscesses, either by Derivation into a neighbouring Part, or Revulsion to Parts more remote from the Seat of the Disorder. *Heurnius* commends Cauterics as an excellent Precaution against the Pestilence, assuring us, that, by their Benefit, Multitudes of Persons, who have the Care of those who lie sick of the Pestilence, escape free and uninfected: They cauterise themselves, he says, in many Parts of their Bodies. He adds, that Cauterics are only a Preservative against, but no Cure for, the Pestilence; for, before it can exert its Virtue, which is after ten Days, the Patient is carried off by the Distemper. We have a memorable Observation in *Riverius*, which demonstrates, that the Matter of a Disease may, by means of spontaneous Abscesses, and artificial Ulcers, be diverted into remote and opposite Parts. A Man, he says, who had a long while laboured under a Pain of the Loins, all Remedies proving ineffectual, at last dy'd. A little before his Death, among other Means that were us'd, he had a Cautery apply'd to his Thigh, four Fingers Breadth above the Knee, from which, when the Eschar or Cruſt fell off, there flow'd about half an Ounce of a sort of Sanies, after which the Cautery every Day discharg'd an Ounce or more of true laudable Pus. The dead Body being dissected, the Lungs were found to be purulent, which was the principal Cause of his Death; and in the Loins was discovered a large Abscess, from whence proceeded that long and obstinate Pain with which the Patient had been afflicted. From this Abscess to the Cautery was traced a Duct, through which some Pus flow'd. This is a signal Instance of the Care and Industry of Nature in eliminating the Causes of Diseases, for which End she had form'd this Duct at the Abscess of the Loins, in order to evacuate and cleanse it thro' the cauteris'd Part, which, however, she had not Strength to accomplish, but sunk under the Work. *Mermannus*, in his *Consultationes*, says he has found, by long and general Practice, that it is safer to apply Cauterics to the Arms than to the Legs; that Persons who have corpulent Bodies, and big Bellies, but weak and ulcerous Legs, which are subject to an Erysipelas, or Inflammations, are no safe or proper Subjects for a Cautery. To direct us in our Practice, let us observe a few Things from *Mercurialis*. Cauterics, says he, seem invented by Physicians, in Imitation of Nature, who, when she works with a Design to free the Patient from some chronical or acute Disease, is accusom'd either to expel the morbid Matter out of the Body; which kind of Abscess *Hippocrates*, *Epid.* 2. and elsewhere, calls καὶ ἐκπαῖρ, or to deposit it on some more ignoble Part, which he calls an Abscess, καὶ ἀποθήκη and the Event, in both Cases, is generally happy, when the Abscesses fall upon the inferior Parts, or, at least, below the Seat of the Disease. A Physician, therefore, who would follow the Conduct of Nature, must cauterise in the inferior Parts, or, at least, below the Disease. He adds, that old Age ought not to deter the Physician from the Use of Caustics; for the Spirits are so far from being weaken'd or dissipated thereby, that they are the more excited, and the natural Heat is increased.

But let us hear the principal Objections against Fontanels. *Helmont* the Father, disputing against the Use of Cauterics in Catarrhs, for preparing a new Emunctory by which Nature might free itself, says, that by raising a Fontanel we obtain not an Expurgation of a malignant Humour from the Body, but only a Diminution of the Blood, successively converted into Pus, which is generated in the Ulcer. Of the same Opinion is the celebrated *Albinus*, who, in his Discourse on Fontanels, after totally rejecting the Use of Cauterics, concludes in the Words of *Helmont*, *Consulto claudantur Fontanelle*, "Be advised, and dry up your Issues."

But omitting Authorities, *Helmont* himself grants, that Cauterics may do the same Service as may be expected from a continual and insensible Diminution of the oppressive Redundance of the blood by Fontanels, and may, therefore, on Occasion, be of Benefit to corpulent Persons, great Eaters, plethoric Bodies,

Bodies, and those who lead a sedentary Life; but then he calls them only palliative Medicines; and tho' he allows they may now-and-then be of Service in Catarrhs, yet the Reason of this, he says, is not because they evacuate the descending Matter of a Catarrh, or divert it another Way, but because they diminish the Mass of the alimentary Blood and Humours.

That, in an artificial Ulcer, or Fontanel, the good Humours which flow thither are converted into Pus, cannot be deny'd, it being a thing evident to all who know, that, in every wounded Place, a Conflux of Liquids, in Conjunction with the half-mortify'd Fibres, generates Pus: And that the Pus, which distils from Fontanels, is no other than the Aliment corrupted; *Rodericus a Castro* proves by Experience and Observation, which shew, that an Arm or Leg, in which is a Fontanel, are much more extenuated than the other; for which Reason *Ettmuller* seems to be in the right, when he prescribes opening of Fontanels in excessively fat and unwieldy Bodies. I will allow also, with *Hoffman*, that these artificial Ulcers are rather a Preservative against a Distemper, and conduce more to a palliative than a perfect and radical Cure. But that all Fontanels, without Exception, should be dried up at once, is contradicted by Experience, which assures us, that as old Ulcers, too speedily heal'd, without due regard to the Temperament of the Blood and Humours, induce a Cachexy, slow Fever, and different kinds of spasmodical Affections, in Bodies abounding with ill Humours; so a too sudden Suppression of a Flux, by means of Fontanels, produces much the same Effects; and one experimental Proof, as *Hoffman* says, is worth a hundred of the most plausible Reasons. The before-mention'd *Rodericus a Castro* also, after a long Ratiocination against Fontanels, adds, "I would not have any think, that I am absolutely against the Use of Fontanels; I only condemn their Frequency, and promiscuous Use; for I must confess, that I have myself, on Occasion, open'd Fontanels, with very great Benefit to the Patient." He then proposes the Cases in which he judges a Fontanel would be convenient; as, first, With respect to the Quality of the offensive Matter, when the same is vaporous or pituitous, or, at least, fluid and diluted; secondly, With respect to the Quantity, when the Disease is very oppressive, and requires Vent at every Part; thirdly, When the usual Passages for the natural Evacuations are stop't up; and, lastly, When the nervous and muscular Systems are affected with wandering Rheums.

Cauteries are also of Use whenever it shall be found proper to act by determining the Humours to or from any Place requir'd; to which Case belongs their Application, in order to stop the Progress of a Sphacelus, where, by opening a Passage for the Effusion of the sound Humours, we prevent their Communication with those which are corrupted. Their Efficacy is also evident in opening Abscesses, in the Extirpation or Separation of useless and corrupted Substances, in mitigating Pains, in quickening the Nerves, in drying and strengthening the Parts, and in stopping Hæmorrhages. To these Cases, I suppose, may be reduc'd all the various Actions of caustic Remedies. Their Usefulness in opening Abscesses, in Extirpation of useless Parts, as Warts, for Instance, and Separation of corrupted Parts, as in a carious Bone, is obvious from Experience, as they destroy the Part to which they are apply'd: But that they should ease Pains, by suppressing Motion that proceeds from the Nerves, and is thence communicated to the whole Body, and, again, that they should excite Motion in the System of the Nerves, seem, at first Sight, to be contradictory Effects: We must therefore observe, that when a Cautery is apply'd to a pain'd Nerve, it immediately renders it insensible by its Destruction. That an exquisite Pain is excited by the Application of the Cautery, cannot be deny'd; but as soon as the Virtue of the Thing apply'd ceases to act, the Pain ceases with it, the Motion, which was the Cause of the former Pain, ceasing with the Destruction of the Part moved. Caustics do not, indeed, in themselves, or immediately, act upon the Cause of the Pain, when wandering in the Vessels, or settled in the Humours, but they remove its Effect on a particular Part. Wherefore *Sydenham*, speaking of the Cure of the Gout by Burning, says that such a Remedy may contribute something towards the Mitigation of the Pain, by attracting and dissipating the most subtle and spirituous Part of the morbidic Fomes deposited in the Joints. But Cauteries may be also conceiv'd to exert their Influence by stimulating the Vessels, in exciting a new Pain, and, by that means, communicating Motion to the peccant Humours, compelling them to take new Courses, and so relinquish the Part affected; or in resolving, by the excited Motion, tenacious viscous Humours, and rendering them more fluid; or, lastly, by diminishing the Conflux of the Humours, by destroying some of the smaller Vessels.

Having thus explain'd the anodyne or sedative Effect of Caustics, it is easy to comprehend, at the same time, how they are qualify'd to answer, upon Occasion, that other Intention of causing Commotions in the nervous System, in cold Bodies, which require a strong Stimulus: We understand also the Cause why intermittent Fevers may be cur'd by Caustics; and why, and at what Season, it is proper to apply them, in order to pro-

voke the Menfes, by deriving the Humours towards particular Places, stimulating the inert Vessels, and exciting a brisk Motion in the Humours. For these Reasons *Amatus* advises the Use of Cauteries in a cold Catarrh, but will not permit it in a hot one, except in the Intervals of the Disease; "Because," says he, "a Cautery increases the Inflammation, and renders the Matter more fluxile, sharp, and acrimonious, as we have experienc'd." *Gent.* 2. & 5. That Cauteries may excite Motions of considerable Moment in the Body, appears from an Observation of *Hildanus*, where he says, that a caustic Oil, apply'd to the cancerous Breast of a Woman big with Child, had, besides other dismal Symptoms, almost caused an Abortion. But how can Caustics be said to be Strengtheners? It is answer'd, they work such an Effect, first, by dissipating Humidities, drying, exciting Heat, and stimulating the Solids; and, secondly, because, when the Crust is removed, and the Ulcer consolidated, the Cicatrix which is induc'd, proceeding from the Vessels which before were broken, and are now render'd juiceless, hard, and callous, causes a Rigidity of the Part, from a Coalition of the Vessels, and a greater Constriction of the Skin. Hæmorrhages from the smaller Vessels, which is the last Effect that remains to be accounted for, are stop't by the Action of Cauteries, as it causes a Crispation and Corrugation of those Vessels by Adustion and Constriction.

Since an imprudent or unseasonable Use of the most approv'd Remedies disappoints the Expectation of the Physician, it cannot seem strange, that Cauteries should sometimes fail of having the desired Effect; and, moreover, that the fatal Symptoms, which have often succeeded their Application, are sufficient to persuade us, that they are of the Number of those Remedies, which a prudent Physician never has recourse to, but in Cases of Necessity. In their Application great Care is required in chusing a proper Place: Let the Nerves, and Tendons of the Muscles be avoided; nor let a considerable Vein or Artery be cauterised, without urgent Indication, for fear of exciting a Gangrene, or a great Hæmorrhage. Suffer not your Cautery to penetrate too deep, and make too great an Eschar; for this is not only terrible and painful, but hurtful to the Nerves, and succeeded by great and continual Pain, and other dismal Symptoms; and, by the great Suppuration, the Body is exhausted and weaken'd. In cancerous Tumors, Cauteries are seldom or never to be used; and *Hippocrates* pronounces Cauterising unseasonable at some Seasons of the Year [See his *Treatise of Air, Water, and Situations*, under our Article AER]. But *Albucaasis* directs a Cautery to be used at any Time of the Year, "Because some mortal Disorder may require speedy Help by this Remedy; and particularly under urgent and violent Pains, which will admit of no Delay, and where more Danger is to be apprehended from the Malignity of the Disease, than from the painful, tho' transient, Action of a Cautery."

Whether actual or potential Caustics are to have the Preference, Authors are not agreed; and it seems hardly possible to give a general Determination of the Question, because of the Variety of Cases, in which sometimes one, sometimes the other, may be required. *Fienus*, *Lib. 3. Cap. 17.* prefers actual Cauteries, where a hard and solid Cicatrix is intended to be produced. *Claudius*, *Lib. 2. Sect. 1. C. 7.* approves of the actual Cautery in two Cases; first, if it be a noble and principal Part, or, at least, one which wants to be corroborated, that requires the Operation, on which account none but an actual Cautery ought ever to be applied to the Head: The other Case is, when the Part requires to be speedily evacuated, cleansed, and dry'd. *Vesalius* is of the same Opinion; and so is *Bottonus*, *Gynæc. T. 2.* "For actual Fire, he says, will perform without Pain, and with the greatest Speed and Safety, Effects which cannot be expected otherwise." *Scultetus* disapproves of potential Caustics, because they operate slowly, and generally with a great deal of Pain; and cannot be applied with Safety, because we have no exact Knowledge of their Virtues, and therefore find them sometimes more or less efficacious than we expected. *Hildanus* gives the following Reasons, why, in the Cure of a Gangrene and Sphacelus, an actual Cautery is, by good Authors, preferr'd before a potential one: (1.) Because Fire, as *Albucaasis* observes, is something simple, and void of extraneous Qualities, for which Reason it leaves nothing behind it but Heat, and an Empyreuma; whereas, on the contrary, a potential Caustic, especially Arsenic, Sublimate, and the like, have, and leave behind them, a malignant Quality in the Part affected. (2.) Because Fire has its Action determin'd: Thus, a red-hot Iron operates no farther than the Surgeon pleases; whereas the Operation of a potential Cautery is not in the Power of the Surgeon, but in the Quality of the Medicine. (3.) An actual is preferr'd to a potential Caustic, for this Reason, that, because of the Vehemence of the Fire, it operates in a Moment; but a potential Caustic, whose Virtue and Power of Burning are only potential, operates slowly: Now a Gangrene, being a very acute Distemper, and giving no Respite, is to be treated with the most speedy Remedy, which is a red-hot Iron. (4.) The Redundance of excrementitious Humours in the Gangrene

and Sphacelus, requires a Remedy which is hot in the highest Degree; such a one is red-hot Iron, but not a potential Cautery, especially Arsenic; for, tho' it be hot, it leaves a corrupt Humidity, as *Avicenna* calls it. (5.) Since the Part, which labours under a Gangrene, is extremely weaken'd, and from the Redundance of excrementitious Humours relax'd, it requires a drying and strengthening Remedy: Now an actual Cautery both dries and corroborates, but a potential Cautery moistens and debilitates, both on account of the Malignity it communicates to the affected Part, and of its Operation, which is both slow and painful; so that the Pain procures a greater Conflux of Humours, which more and more relax and debilitate the Part. But the Pain of the actual Cautery is only momentary; for, as soon as the burning Iron is removed, it ceases, especially if an Anodyne be applied. Thus far *Hildanus*: And the very learned *Fabricius ab Aquapendente*, after the Example of *Hippocrates*, prefers actual Caustics for cauterising the Joints, because the others cause no Corrugation or Crispation of the Skin, nor strengthen the Joint, as does Fire. *Prosper Alpinus, Med. Egypt. Lib. 3.* says, that potential Caustics can by no means strengthen the Parts, because of their poisonous Nature, which destroys the natural Heat. Patients of a tender Constitution seldom admit actual Fire; the Application of which, however, is not more dreadful and cruel, than powerful and effectual; for the very Sharpness of the Pain which it causes, cannot but produce some surprising Revulsion. But potential Caustics exert their Influence in a milder, but slower manner, and with some sort of Delay. The Strength and Force, however, of potential Caustics is very various, according to the different Substances of which they are made, and the different Manners in which they are prepared; or, according as a greater or smaller Quantity is applied to the Part. "Many, says the ingenious Dr. *Freind*, in his *History of Physic, Vol. 2.* prefer the actual to the potential Cautery, because the Eschar it produces, separates sooner than that produced by the other; but, because the Application of the former seems cruel and barbarous, we use the latter more frequently, that we may indulge People in their Delicacy, and Aversion to Pain: In consequence of which very Circumstance, an Ulcer may more commodiously be made deep at Pleasure. But *Glandorp*, who has very accurately handled this Subject, so highly extols the actual Cautery, that he says, he would rather submit to have six Fontanels made by it, than one by the potential Cautery, which, in a Course of fourteen Years Practice, he only used twice." *Johannes Heurnius*, in *Tom. 1.* pronounces a red-hot Iron a highly safe Cautery. Custom, the merciless Tyrant of the Skilful in every Profession, often obliges the Surgeon to use the potential, rather than the actual Cautery; and then he thinks it left to his Judgment to chuse, from the *Materia Medica*, such as is most likely to answer his Intention, produce the design'd Effect soonest, and leave the least unseemly Cicatrix. But Experience is the most faithful Director of his Choice in this Particular. That, besides the *Arabians*, the barbarous Nations, and antient Physicians, made more Use of the actual than of the potential Cautery, we have already seen. But since the Substances, by means of which live Fire may be applied to any Part of the Body, are various, it now remains, that we say something concerning the Differences between actual Cauteries. *Hippocrates* cauterised sometimes with crude Flax, sometimes with a red-hot Iron, sometimes with a Piece of Box-wood, and at other times with the Fungus, according as he intended to cauterise more or less deeply. In cauterising the bony Parts of the Body, he used the Fungus; but, to the fleshy and more muscular Parts, he applied the Iron, as has already been said. We have before observed, from *Prosper Alpinus*, that the *Egyptians* have a Method of Cauterising with Dolls of Flax and Cotton; and the same Author informs us, that many barbarous Nations cauterised only with Dolls of Flax boil'd, wrapt up together, and kindled. We must not here forget to enumerate the Reasons and Arguments which this Author uses, in order to persuade the Rich, that the *Egyptian* Method of Cauterising is preferable to that of the *Europeans*, perform'd by means of Irons: "For, says he, tho', in the Opinion of some, their Practice may possibly seem trifling, when, in order to cauterise, they use Dolls of Flax and Cotton, wrapt up in a pyramidal Form, kindling the smaller Extremity, and laying the Base on the Part to be cauterised; yet, I think, they have very good Reason for this Piece of Practice; for they do not use Iron, or any other Metal, ignited, in order to cauterise, but the Substance, already mention'd, kindled; because the Fire, when lodged in a more porous Substance, acts upon, changes, and resolves the Parts more gently, and produces a smaller Pain in the Integuments, whilst they are cauterising: Hence the Method of Cauterising is not so terrible among them as among us; for, by any ignited Metal, the most intolerable and intense Pain is excited, which miserably racks the Patients; for which Reason our Countrymen deservedly abhor this cruel Kind of Remedy. I, therefore, think their Me-

thod preferable to that in which the hot Iron is used, since, by the former, the Resolution of the Parts is more mildly made, and a smaller Inflammation brought on; especially in Parts where Nerves and Tendons occur, which are in Danger of being hurt by a too strong and intense Fire. But there is still another Advantage attends this Method of Cauterising, which is, that, by laying the Base on the Part to be cauterised, and kindling the Apex, which is at a considerable Distance from it, they seem, at first, as if they did not intend to cauterise the Part. But the Reverse of this happens in cauterising with the Iron, and lays that Method under a very great Disadvantage, since Nature is often either unable to bear sudden Changes, or is considerably hurt by them. But by their Method, the Part is gradually warm'd, and so disposed for the Action of the Fire, that the Pain is less, when it comes to act immediately upon it. Two Advantages, then, attend this Method of Cauterising used by the *Egyptians*; the first is, that the Part itself is more mildly burnt; and the second is, that it is previously and gradually disposed for the Action of the Fire: By this means the *Egyptians* submit to the Use of the actual Cautery, with far less Dread and Horror than Patients in *Europe* do." *Martianus*, in his Annotations on *Hippocrates*, informs us, That he has found, from Experience, that all these Methods of Cauterising are good; and that they only differ in this, that the more dense and compact the Substance, which receives the Fire, is, the more deeply it burns and cauterises; for which Reason this Substance ought to be varied, according to the Nature of the Place affected, and the Sex, Age, and Constitution of the Patient." As *Hippocrates* himself did not acquaint us with his Method of Cauterising with crude Flax, and the Fungus, *Martianus* gives us the following Directions, with respect to this Particular. "Crude Flax, says he, is to be tightly wrapt up in the Form of a Pyramid, the Largeness of whose Base is to be indicated by the Part to be cauterised; only we must not forget, that the Burning will be somewhat broader than the Base of the Pyramid. This, when kindled at the Top, is to have its Base applied to the Part, and to remain there till the whole Pyramid is consumed; for the Fire, gradually approaching the Skin, cauterises the Part; and what seems surprising is, that it produces this Effect almost insensibly, and without Pain. When the Fire was extinguish'd, *Hippocrates* applied boil'd Leeks to the Part cauterised, till the Eschar fell off. The Moderns apply Butter and Cabbage, by which means the Ulcer may be kept open at Pleasure. Cauteries of this Kind were sometimes prepared by *Hippocrates* of that Species of Fungus, which is by some used as Tinder." *Fabricius ab Aquapendente*, in his *Chirurg.* thinks, That *Hippocrates*, by crude Flax, means twisted Flax, not boil'd, or a Rope made of crude Flax, twisted, such as the Matches for discharging Cannon, which, when kindled, keep the Fire; only this last Sort of Match is boil'd." The learned *Le Clerc*, in his *Histoire de la Médecine*, thinks, that, by crude Flax, *Hippocrates* meant new Linen Cloth, which had not been wash'd in any Lixivium, a Method still practised among the *Egyptians*. The same Author also observes, that, in the *Egyptians* Method of making Cauteries of flaxen Bags, fill'd with Cotton, we ought not only to consider the Action of the Fire burning the Part to which it is applied; but also of the acrid caustic Oil dropping upon it, from the flaxen Bag, whilst it is burning. The Cotton, according to him, serves only to kindle and keep alive the Cloth. This he remarks in Opposition to *Sydenham*, who informs us, that the Method of curing the Gout in the *East Indies*, by kindling the Moxa on the Part affected, agrees with that perform'd with crude Flax, in the manner of *Hippocrates*, imagining, that there is no Difference between the Flame produced by Flax, and that produced by the Moxa. I shall put an End to this Article with the celebrated Words of *Hippocrates*, in *Aph. 85. Sect. 7.* "What Medicines do not heal, the Knife heals; what the Knife does not heal, that the actual Cautery heals; and what the actual Cautery does not heal, is justly esteem'd incurable."

CAUSUS, καῦσος, from καίω, to burn. A burning Fever, one of the continual Kinds, and attended with a burning Heat, and most intense Thirst. Its original Cause and Symptoms are described by *Hippocrates, Lib. de Rat. Vici, in Morb. Acut.* in the following manner: καῦσος δὲ γίνεσθαι, &c. "A Causus arises in the Summer, when the Veins, being parched and dry'd by the fervor of the Season, attract to themselves an acrid and bilious Ichor. It generally happens after a long Journey, and long Thirst, when the dry'd Veins attract to themselves hot and acrimonious Rheums. Under this Disorder the Tongue is rough, dry, and very black, the Parts about the Belly are affected with a biting Pain, the Excrements are very liquid, and of a pale Colour; there is a vehement Thirst, want of Sleep, and sometimes a Delirium."

To these Symptoms he adds, *Lib. πρὸς πᾶσι*, “a Colour somewhat bilious, and bilious Spit, with a Refrigeration of the external Parts, and a vehement Heat of the internal.” And a little after he adds, “This Disease arises from a Com-motion of Bile settled in the Body.” He gives much the same Description in his second and third Books of Diseases, and in his Book of *critical Days*; from all which it appears, that a sort of igneous and burning Heat, with a vehement and unquenchable Thirst, are the distinguishing Properties of this Fever, as *Galen* also writes in many Places, particularly in his second and third Comments on the third Book of the *Epidemics*, and in his fourth Comment on the Book of *Regimen in acute Diseases*. The Author of the *Definitiones medicæ*, much to the same Purpose, says, “A Causus is attended with a great Inflammation, and a Restlessness of the Body, together with a Dryness and Blackness of the Tongue, and a Desire of cold Water.”

There are two Species of a Causus mentioned by *Hippocrates*, one genuine, the other spurious, as *Galen* hints, *Com. 4. R. V. I. A.* “I find,” says he, “that when the Patient labours under a burning Heat, and unquenchable Thirst, Physicians call it a burning Causus. And, if this be the Case, then are we to call the Disease, when the Heat is not burning, and the Thirst but moderate, simply Causus, tho’ it be not, in a perfect and exquisite Degree, a Causus; but, being only half that Distemper, may, for the sake of Compendiousness in Learning, be called a spurious Causus. And as we usually give such Appellations to tertian Fevers, so we may accustom ourselves to speak of two Kinds of the Causus Fever, as there are of tertian Fevers, one perfect and genuine, the other spurious, which is attended with some of the genuine Symptoms, but not all.” *Hippocrates, Lib. 1. Epid.* expressly reckons a Causus among the Kinds of continual Fevers.

Frederic Hoffman, in his Medicina Rat. Syst. gives the following Account of this Species of Fever.

Among the Moderns, all those Fevers, whether of the acute or continued Kind, which begin with a shivering Coldness; and are afterwards accompanied with a violent Heat, Thirst, Uneasiness, and Quickness of the Pulse, are call’d burning Fevers. *Hippocrates* also, the great Founder of the Healing Art, deduces the Origin of all Fevers, from the Bile more or less vitiated or exalted. Nor does he make any mention of sanguine Fevers, or Synochas, but thro’ the Whole of his Works calls almost all Fevers, whether continued or inflammatory, whether simple or complex, whether putrid or malignant, as also Synochas, by the common Name of burning Fevers. But that there is a very considerable Difference between these Fevers, is sufficiently obvious from an accurate Attention to the Approach of their several Symptoms, their various Terminations, and the different Methods of Cure requisite in each.

A burning Fever, therefore, by the *Greeks* call’d καυσός, is, properly and strictly speaking, that Species of Fever which is accompanied with a burning and intense Heat of the whole Body, and an insatiable Thirst, whilst at the same time the Patient’s Tongue is parched, furrow’d, and black. All the Antients specify these two Accidents as the most distinct and infallible pathognomic Signs of a Causus; for which very Reason they have also call’d it a hot and a burning Fever. Thus *Hippocrates*, in his Book *De Affectionibus*, gives us the following Account of this Disorder: “The Heat,” says he, “is very intense, the Thirst insatiable, the Tongue rough and black, the Colour somewhat bilious, and the Spit bilious.” But *Aretæus*, a faithful and exact Relater of the Histories of Diseases, in the fourth Chapter of his second Book *Acut.* gives us a fuller Description of this Disorder in the following Words: “The Heat, in all the Parts of the Body, is highly intense and penetrating; but more particularly the Breath appears, as it were, to be heated by a Fire. The Air is eagerly inspired by the Patient, he is excessively desirous of Cold, his Tongue is parched, his Lips and Skin rough and dry, his Extremities cold, and his Urine highly bilious. He is also incapable of Sleep, and his Pulse is frequent, small and weak. His Eyes are clear, shining, and reddish, and his Face is of a preternatural Colour. As the Disease increases, all these Symptoms become greater and more violent. The Pulse becomes very small and frequent, the Heat intolerably intense and burning. The Patient is seized with a Delirium, and knows nobody. His Thirst is increased, and he is fond of handling all cold Objects, such as the Walls, the Bed-clothes, the Floor, and Water. The Backs of his Hands are cold, but his Palms very hot, and his Nails livid. His Respiration also is frequent, and a dewy Sweat breaks forth about his Forehead and Neck.” But as the accurate *Lommius*, in his *Observationes Medicinales*, is more full and circumstantiate in enumerating the Symptoms and Prognostics of this Disorder, we shall here translate what he says on this Subject. A Causus, says he, is known by a burning Heat of the Body, which is more violent internally than externally. The

Patient is sometimes afflicted with an obstinate Watching, and sometimes seiz’d with a profound Sleep. His Tongue is dry, foul, rough, blackish, and a bitter Taste is perceiv’d. He breathes with the greatest Difficulty; his Stomach begins to be rack’d with a pungent Pain; his Appetite is lost; his Thirst becomes violent; and the Heat about his Præcordia intense. Some Patients have their Bodies soluble, and others are costive. The Persons labouring under this Disorder are restless, bear it with Impatience, and are frequently seiz’d with Deliriums. This Species of Fever, as it is highly violent, so it generally terminates soon; for when, from the Beginning, it is accompanied with good Signs, it generally terminates on the fourth Day; nor does it continue longer with any than the seventh. It terminates either with a Vomiting, a Flux, an universal Diaphoresis, or an Hæmorrhage of the Nose. As this Disorder is seldom incident to old Men, so it proves highly prejudicial to them, when they are seiz’d with it. Young Persons are more frequently subject to it, and generally escape better. A Causus or burning Fever is frequently chang’d into an Inflammation of the Lungs; and when this happens, the Death of the Patient is not far off. Both in this Disorder, and in other continued Fevers, great Danger is indicated when a Jaundice appears before the seventh Day, or when the Patient shivers before the Concoction of the Matter. But the Danger is still greater, when the Strength is much impair’d; when, after the Shivering, the Patient does not become warm; when he is afflicted with a continual Watching, or a constant Drowsiness; when he becomes delirious; when his Voice is intercepted; when he becomes deaf, or when he is seiz’d with a great Pain of the Neck. These Symptoms are more particularly dangerous in Patients who are growing delirious.

The Danger is also great when the Patient, endeavouring to take any thing in his Hands, trembles; when his Thirst is insatiable, when his Body is highly squalid, or when his Tongue being blackish, and his whole Mouth dry, he has no Thirst; when his Mouth is preternaturally ill-smell’d; when a Hiccough happens, especially after Purging, or after an immoderate Effusion of Blood. In Children the Danger is indicated to be great, when no Excrements are discharged, when the Patient sleeps none, but often changes Colour, and weeps without Interruption; for Convulsions are subsequent to these Symptoms. When, in Conjunction with an intense Pain of the Head, the Præcordia are drawn inwards, and an Effusion of Blood from the Nose does not happen; or when this Disorder is either not accompanied with, or, if accompanied with, not removed by bilious Stools, Gripes, nor a Pain in the Hips or Knees; for, in either Case, the Patient is very subject to a Delirium; when acute Pains in the Viscera are attended with Convulsions; when the Præcordia are pain’d, or the Patient is in a profound Sleep; when a burning Heat, or a gnawing Pain, in the Stomach are attended with bilious Stools; where a total Retention of the Excrements is accompanied with a continual Pain of the Head; all these are dangerous Symptoms. When the Urine also appears like Water, as it generally does under a Delirium; if such Urine continues to be discharged for a considerable time together, it portends Death.

The Danger is equally great, when the Urine is red, thick, turbid, and fetid; when it is evacuated at short Intervals, and in small Quantities; when it is discharged with Difficulty; when it appears concocted unseasonably, or is evacuated contrary to the Patient’s Inclination; when the Patient does not perceive the Violence of the Disorder, in consequence of his being delirious: When, upon the first Approach of the Fever, a profuse Sweat breaks out; when the Patient begins to grow delirious; or when any Part of the Body becomes paralytic; and, lastly, when the Paroxysm is violently increased on the third Day.

We now come to specify those Prognostics, which, in a Causus, indicate certain and unavoidable Death, which we know will soon be the Fate of the Patient, if the Disease is violent, and the Strength greatly impair’d; and more especially if, at this time, a Delirium or a Rigor happen; if the delirious Patient speaks none at all, provided he is on no other account deprived of the Use of his Speech; if, being very weak, his Eyebrows, his Eyes, or his Nostrils, are distorted; if, at this Juncture, the Patient neither sees nor hears; or if, when his Speech is lost, he lies with his Eyes winking, without a Hæmorrhage from the Nose, or a Vomiting happening, in order to carry off the Disorder. The Danger is also the greater, if the Patient breathes with the utmost Difficulty. The Fate of the Patient is equally deplorable, if the Tears trickle from his Eyes; if they are sunk, prominent, or darken’d; if they roll about in an indeterminate manner; if they are dull or distorted; if their Whites become preternaturally large, and their Blacks small; or if their Blacks are hid under the superior Eyelids, and the Whites appear red, and pale or black Veins are discover’d in them; when a Substance, like a Spider’s Web, covers the entire Eyes; or when the natural Mucus remains in the Extremities of their Angles; if, during Sleep, the Eyelids are not entirely closed; or when they are excessively pale, unless the

Paleness

Paleness is produced by a Flux; or when one of the Eyes is less than the other. To these we may add, that the Danger is unavoidable when one of the Ears is seiz'd with an acute Pain, which Symptom generally carries the Patient off within seven Days, especially if the Patient is young. But old Patients, because their Pain and Fever are not so intense, are generally thought to be in a safer State.

If, in consequence of the Fever, there is a Grinding of the Teeth; if they appear livid, black, and extremely dry; and if at the same time, in the Beginning of the Disease, the Tongue is first dry, then rough, and afterwards black and foul; if the Patient lies with his Mouth gaping, and sleeps continually; or if he seems as if he would be suddenly suffocated; if he can neither drink nor swallow his Saliva, tho' at the same time there is no Tubercle in his Fauces; if he turns his Neck with great Difficulty, or if it is so distorted, as to render his Deglutition uneasy; if his Breath is cold, and his Pulse obscure, thick, and interrupted; if his Thirst, which was before great, is remov'd, whilst, at the same time, his Fever is equally violent, and his Tongue equally dry and black; if a Vomiting of Blood happens, or a Vomiting of various fetid Substances of different Colours; if his Fingers pick the Flocks of the Bed-clothes, or pull involuntarily the Borders thereof, or catch at some Object on the adjacent Walls; if the Extremities of his Fingers and his Nails are livid or blackish, tho' their growing blackish is no deadly Sign, provided the Patient's Strength is able easily to bear the Disease, and if other apparent Signs of Recovery ensue, for then the Patient's Health is restor'd, but the black and corrupted Parts fall off. It is also a fatal Sign when the Abdomen becomes tumid, especially after the Exhibition of a Purgative; or when the Belly, being distended with Flatulencies, cannot discharge them; when, in the Beginning of the Fever, yellow Bile is discharg'd; when the Excrements are liquid, and at the same time black or pale, or pinguious or fetid; when the Patient is entirely costive, and seiz'd with a sudden Palpitation of the Heart, and a Hiccup; when the Urine begins to be intercepted, or to be discharg'd black, thick, or fetid; or when the Urine, which was before good, suddenly exhibits bad Signs; or when, thro' the whole Course of the Disease, the Urine remains like that of Persons in Health; when Blood is discharg'd instead of Urine; or when the Bladder is pain'd or hard. It is an equally fatal Sign, when, in the Beginning of the Disease, the Extremities become cold, and cannot again be render'd warm; when, at the same time, that the Extremities are cold, the internal Parts of the Body are scorched with an intense Heat, or when the Patient is insatiably dry; when the febrile Heat ceases all on a sudden, and without a manifest Cause; when Sweats and Deliquiums happen, at the same time that the Strength is much impair'd; when the Patient lies on his Back, contracts his Knees, and slips towards the Foot of the Bed; when he uncovers and spreads his Arms and Legs, at the same time that they are not preternaturally hot; when the Pain lodg'd in the inferior Parts of the Body suddenly ceases, in consequence of its being transferr'd to the Viscera; when any Ulcer, under which the Patient labour'd before the Fever, or an Ulcer arising during the Fever, becomes dry and livid; when there is an Eruption of Puslules all over the Body, if at the same time a purulent Abscess does not appear; when, upon the Appearance of an Abscess near the Ear, it does not come to Maturity, no Hæmorrhage happening from the Nose, nor thick Urine being discharg'd in large Quantities; when a cold Sweat arises, and the Patient is severely afflicted on the fourth and seventh Days; when, on the eleventh Day, he perceives no Crisis; or when, on the critical Days, he becomes cold without Sweats ensuing; when a Rigor happens, and often returns, and at the same time the Disorder is not alleviated by that means. The Patient never fails to die, when the Temples become sunk, the Nostrils sharp, the Eyes hollow, the Ears cold, languid, and the Extremities hanging a little down; when the Skin about the Forehead is hard and tense; when the Countenance of the Patient is pale like a Corpse, or black, or manifestly alter'd by the Disorder.

But to return to the judicious *Hoffman*, from whom the former Part of this Article is taken: These burning Fevers are widely different from other Fevers of the continued Kind; for in a Synocha, whether simple, complex, or cacochemical, the Burning is not so intense, nor the Thirst so insatiable, but the Heat is milder, and accompanied with a kind of Moisture. Synochas are principally incident to plethoric Persons, those of a lax Habit, and such as live delicately, especially in the Spring, and in temperate Climates. But a Caustus principally attacks lean Persons, those of delicate or bilious Constitutions, and generally rages in hot dry Weather long continued, especially in hot Climates. Besides, in a burning Fever, contrary to what happens in other continued Fevers, the Countenance becomes yellow, and the Patient is either seiz'd with a Vomiting, or an Inclination to it, and a Loathing of Food. A high-colour'd Urine, deeply ting'd with Bile, is discharg'd, and fetid bilious Excrements are evacuated in large Quantities. Burning Fevers, and such as arise from an Acrimony, or too large a

Quantity of Bile, have this peculiar to themselves, different from other continued inflammatory, sanguine, and malignant Fevers, that, on the odd Days, and about the third Day, they are augmented, but are somewhat less intense on the even Days; which is also to be observ'd in the continued Tertians, those of the choleric Kind, as also in those which the Antients call'd Tritæophyæ, which, on the third Day, are exasperated without any periodical Shivering or cold Fit, like that which happens in the Hemitritæa, or Semitertian. Add to this, that the Fevers, accompanied with a Redundance either of pure or impure Blood, are generally terminated on the fourth Day by a Diaphoresis, or a large Hæmorrhage, accompanied with a Redness of the Face; whereas burning Fevers terminate about the seventh Day, after a Shivering, which proves critical, either by a Diaphoresis, or symptomatical by a fatal Inflammation of the Stomach, Duodenum, and Parts to which the biliary Ducts reach. And, lastly, with respect to the Method of Cure, there is a Difference; for the ardent Fevers are greatly mitigated by Draughts of cold Liquor, which does not happen in other continued and inflammatory Fevers; much less in those of the malignant and putrid Kind. Venesection is highly necessary in those Fevers which arise from Blood stagnating in the large Vessels, as also in inflammatory Fevers, especially such as seize those Parts and Viscera which most abound with Blood. But in genuine and intense burning Fevers, this Evacuation is so far from being necessary, that it is rather hurtful.

These true and violent burning Fevers formerly were, and still are, most frequent in *Asia, Greece, Egypt, and Italy*: For this Reason the great Founders of Medicine, *Hippocrates, Galen, and Aretæus*, have copiously and accurately laid down the Prognostics and Method of Cure proper in this Disorder. But in our temperate Climate they rarely occur; and when they do, they are owing to a too liberal Use of strong Wine, hot Summers, an obstructed Perspiration, or an intense and violent Exercise, either of the Body or Mind. In our Climates sanguineous burning Fevers, or bilious Synochas, and choleric Fevers, are more frequent.

What we commonly call bilious Synochas, are such as attack the Patient without any considerable previous Horror and Rigor, but with an intense Heat, Thirst, Watching, Uneasiness, and Restlessness, in Patients of sanguineo-choleric Habits, and such as abound with a hot and bilious Blood; and these Fevers either terminate in a salutary manner, or prove mortal, on the odd or critical Days, after a previous Rigor. They terminate in a salutary manner either by a Diaphoresis, or, for the most part, by an Hæmorrhage from the Nose; for these are the Species of burning Fevers, concerning which *Hippocrates, Lib. 1. Epid. Com. 2.* observ'd, that all those recover'd, who had either had an Hæmorrhage from the Nose, or any other Part; whereas those died who had no such Evacuation. But when these Fevers prove fatal, they either terminate in an Inflammation of the more noble Parts, such as the Membranes of the Brain, the Lungs, the Stomach, and Intestines; or in a mortal Syncope, in consequence of the Blood being collected, stagnating, and becoming grumous, in the Right Ventricle of the Heart.

Another Species of a complete burning Fever incident to our Countrymen, is what we call the bilious Fever, which seizes the Patient with an intense Heat, Thirst, Uneasiness, a Vomiting, or continual Inclination to vomit, bilious Stools in large Quantities, a Coldness of the Extremities, an internal Heat, and a Cardialgia. But this Species of Fever is justly distinguish'd into that of the more and less acute Kind; in the former, the Symptoms are far more violent. The Stools, and Matter discharg'd by Vomit, are bilious, and in large Quantities; the Patient is seiz'd with a Cardialgia, attended with a Syncope, and generally this Disorder proves mortal before the seventh Day, by a violent Inflammation of the Stomach and Duodenum, the Signs of which are a violent and fix'd burning Heat about the Præcordia, a Coldness of the Extremities, Restlessness, and Uneasiness, a Hiccup, and a copious Eructation of the Bile and Saliva, a yellow Colour of the Countenance, a cadaverous Face, commonly known by the Epithet *Hippocratic*. Some of these Fevers are not so acute, but longer protracted, and sometimes remitting, or appearing evidently intermittent; they are every Day, or every third Day, exasperated with Vomitings, Uneasiness, and cold Fits, for which Reason they may be justly call'd quotidian, or continued Tertian Fevers. These, unless speedily remov'd by proper Medicines, readily degenerate into slow Fevers, and excite long Disorders of the Stomach, heavy Pains, Eructations, and Inflations, in consequence of the deeper or more superficial Corrosion of the Stomach by the pungent bilious Juices.

As to the Causes and Generation of these Fevers, that Species which is highly burning, and in which the Patient is seiz'd with a violent and intense Heat, a Dryness of the Tongue, and an insatiable Thirst, in which the Parts, both internal and external, are parch'd and dry'd, has no other Cause, than a quick Commotion and Agitation of the Blood and Humours, in consequence of the smaller Vessels of the fibrous and vascular Compages of the Body being partly obstructed, and partly

spasmodically

spasmodically constricted: By the reciprocal Attrition of the Solids with the Fluids, the intestine Motion of the sulphureous Parts is also increas'd, from which arises an inflammatory Heat, which dissipates and wastes the Fluids, whilst, at the same time, it parches and burns the Solids. But in Persons of a plethoric Habit, and such as are full of Juices, in consequence of the Softness and Laxity of the Fibres, the Heat is milder and less intense, the Fever less burning, the Dryness of the Skin and Fauces not so violent, nor the Thirst so insatiable. In that Species of burning Fever which we call'd bilious, there is a quicker Motion of the Fluids, not only on account of the Redundance of the salino-sulphureous Parts in the Juices, and some of the small Vessels being rendered narrow and obstructed, but also the large Quantity of bilious Juice, secreted in the Liver, and carried into the Duodenum and Stomach, by its Acrimony and Pungency, irritates, corrodes, and inflames the nervous Coats: From this arise the Symptoms peculiar to this Fever, such as a Heat, Uneasiness, a Cardialgia, a Nausea, a Retching to vomit, together with violent Discharges of bilious Matter by the Mouth and Anus.

All Things, therefore, which heat the Blood, and generate sulphureous Particles in it, or which hinder or retard its free Circulation thro' the smaller Vessels, contribute to the Production of burning Fevers: Hence those are more subject to them than others, who are of a bilious and firm Habit, who indulge themselves in the Use of spirituous Liquors, who are frequently under the Influence of exorbitant Passions, especially that of Anger, or who use too violent Exercise. Hence also the Reason is to be deduc'd, why in hot Climates, and the Southern Parts of the World, intense burning Fevers happen; as also, why, in our own Country, after long-continued Heats in a dry Summer, succeeded by a cold Autumn, bilious Fevers, bilious Diarrheas, Dysenteries, double and continued Tertians, not only frequently happen, but rage epidemically. But an obstructed Perspiration, and the violent Sallies of Anger, principally contribute to the immediate Production of this Fever, in those who have a natural Disposition and Tendency towards it; for when the Juices abound with hot sulphureous Particles, and when the Dissipation of these, thro' the small exhaling Vessels, is intercepted, either by a dense and cold Air, or by imprudently exposing one's self to the Cold, they remain in the Habit, raise an intestine Motion of the Fluids, and excite a Fever. The Effect of violent Anger on the Body is such, that it induces an intense Motion, and a rigid spasmodic Stricture, not only in the whole nervous and vascular Systems, but also acts in a particular manner upon the nervous biliary Ducts, and, by greatly increasing their peristaltic Motion, expresses the bilious Juice from the Whole of these Ducts, and forces it copiously and impetuously into the Cavity of the Duodenum; and, whilst it stagnates in this winding Duct, it produces an Effervescence, by being mix'd with the salival Juice, and acid Crudities; and by that means acquires a pungent and almost caustic Quality, as is obvious from its green æruginous Colour, resembling that produc'd by a Mixture of Bile with some acid corrosive Spirit, such as Oil of Vitriol, and Aqua-fortis.

In the Method of Cure, we are carefully to distinguish between the various Species of burning Fevers, and to have a due Regard to the Constitution of the Patient; for when a violent burning Fever seizes a Patient of a bilious lean Habit, and not very full of Blood and Juices, Venesection is improper. Nor is it to be us'd in bilious Fevers, either of the acute Kind, or such as appear intermittent, and are accompanied with numerous Vomitings and Stools, an Uneasiness of the Præcordia, and a Coldness of the Extremities. But when a Plethora is join'd to that burning Fever which is frequent among our Country-men, and which the Antients properly call'd a bilious or putrid Synocha, a seasonable Venesection, adapted to the Strength and Condition of the Patient, and the Dilatation of the Vessels, is highly necessary; for when a due Evacuation of Blood is made, the Violence of the Fever, and its several Symptoms, is not only much abated, but also a speedy and favourable Termination is to be expected. On the contrary, Experience teaches us, that Women in a particular manner, and such as abound with Blood, are in considerable Danger, if Venesection has been omitted in the Beginning of the Disease; for then Nature herself attempts the Discharge of the superfluous Blood, especially from the Nostrils, which, if it does not happen at a proper and critical Time, does not produce the desir'd Effect, since a Stagnation of the Blood in the Vessels of the Brain ensues, and induces a highly dangerous Phrenitis of the Membranes of the Brain.

After Venesection, we are carefully to endeavour to remove the intense Heat of the Body, together with the insatiable Thirst and Dryness of the Fauces, by such Medicines as fix and correct the violent Agitation of the sulphureous Particles, relax the spasmodic Constriction of the Fibres, dilute the Humours stagnating in the small Vessels, render them capable of a free Circulation, and remove Obstructions, that an equable and free Circulation of the Fluids, thro' the proper Parts and

Vessels, may be promoted. For this Intention the Antients unanimously recommended drinking cold Water. *Hippocrates*, in his Book *de Affect. Sect. 2.* in burning Fevers, orders the frequent Exhibition of cold Draughts by little and little. And *Aretæus*, in *Lib. 2. Cap. 4. Acut.* has the following Words: "If the Patient labours under a bilious Vomiting, a Tensity, a Loathing of Food, Uneasiness, and Loss of Strength, then two or three Glasses of cold Water are to be exhibited, in order to render the Stomach strong; for cold Water easily becomes warm in the Stomach." *Galen* also, in *Meth. Medend. Lib. 9. Cap. 5.* besides Venesection, highly commends cold Draughts, adding this for a Reason, "Because they extinguish the Fever, and render Nature strong and vigorous, in order to expel, by the Anus, and by the cutaneous Pores, whatever is faulty and peccant in the Habit." *Celsus* is of the same Opinion; for, in *Lib. 3. Cap. 7.* he uses the following Words: "If a burning Fever is not at its greatest Height before the fourth Day, and is attended with an insatiable Thirst, cold Water is to be exhibited copiously, and in as large Quantities as the Patient desires. After this, the Patient is to be cover'd with many Bed-clothes, and laid in a proper Posture for Rest, and generally after a long-continued Thirst and Watching, after drinking much Water, and an Alleviation of the Heat, a sound Sleep seizes the Patient, by which a copious Diaphoresis is promoted, and present Relief afforded." But he subjoins these Cautions: "But in those only in whom, besides the Heat, there are no Pains, no Swelling of the Præcordia, no Obstructions, either of the Lungs or Fauces, no Ulcer, no Faintings, and no Flux, the Exhibition of cold Water is proper. But a Patient, who is afflicted with a gentle Cough under this Species of Fever, ought neither to drink liberally, nor use Draughts of cold Water." *Prosper Alpinus*, in *Med. Meth. Lib. 2.* tells us, "That in violent continent Fevers, all the Egyptian Physicians used to exhibit large Draughts of cold Water, because that Liquor concentrates the natural Heat to such a degree, that the Thirst and Heat forthwith cease; by which means the whole Body is corroborated, and the Water is digested: For the most part, the Use of cold Water in these Cases excites profuse Sweats, sometimes bilious Vomitings, a plentiful Discharge of Humours by Stool, and a copious Evacuation of Urine. It is surprising, continues he, that such a Medicine should prove effectual against these Fevers; for they generally terminate by the Evacuations excited by cold Water." The same Author, *de Med. Egypt. Lib. 4. C. 15.* informs us, that this was not only the Practice of the Egyptian Physicians, but that it was accounted a Specific. "Some, says he, in Synochas and burning Fevers, reckon a large Quantity of the Water of Angaril, which is a Species of Cucumber, exhibited for many Days alone, a Specific. Others, in the Height of the Disorder, exhibit large Draughts of cold Water, after which, they cover the Patient with many Bed-clothes, in order to procure a Diaphoresis, by which means I understand a great many have been cured."

Both Reason and Experience concur to shew us, that the high Opinion the Antients entertained concerning the Efficacy of cold Water in burning Fevers, was not altogether without a Foundation; for unless the Stomach and other Internal Parts are inflam'd, and when there is no Anxiety, with a Coldness of the Extremities, nor a Contraction of the Pulse, and a Defect of Blood, Draughts of good cool Water, tho' not intensely cold, exhibited in large Quantities, but not all at once, are of singular Service; for the cold Liquor corrects and obtunds the too violent Motion of the sulphureous and ethereal Particles in the Blood, braces up the relax'd Fibres, and restores a due Degree of contractile Force and Elasticity, to such as are too violently distended. Nor are any bad Consequences to be dreaded from the cold Water, because, by entering the Body successively, it becomes tepid by the internal Heat. This Tepidity, join'd with the Moisture, is singularly beneficial in relaxing the spasmodically constricted Fibres, and rendering the Fluids, stagnating in the capillary Vessels, fit for a due Circulation, by which means a Diaphoresis, a plentiful Discharge of Urine, and Evacuations by Stool are promoted. But since, in the Northern Climates, such pure and light Water is hard to be found, the Water used for this Purpose must be corrected by boiling, or an Admixture of proper Ingredients. *Hippocrates*, in burning Fevers, recommends a Decoction of Water and Barley. And *Aretæus*, in a bilious Fever, recommends a Mixture of Milk and Water. The cold Draughts found most beneficial for Patients in our Climate, are principally Juleps, prepar'd of Spring-water, Lemon-juice, and Sugar; as also Pifans of the Shavings of Hartshorn, Scorzonera-root, and Syrup of the Juice of Lemons, or Julap of Roses and Spirit of Vitriol. Water also, boil'd with a Piece of Bread in it, is an excellent Drink for this Purpose. To this Class of Liquors we may also refer sweet Whey, or that which is acidulated with Lemon-juice, as also the temperate Mineral Springs, such as the *Seltzer*, *Autonian*, and *Wildungenian* Springs.

This Exhibition of cold Water, thus strenuously recommended by Hoffman, is no new Practice. It is treated of at large in Comenius's Treatise on Fevers.

For obtunding and correcting the caustic Acrimony of the bilious Juices, stagnating in the Stomach and Duodenum, especially in bilious Fevers, the most effectual Medicines of the compound Kind are the *Pulvis Marchionis*, and particularly the absorbent Powders, with which are conveniently mixed the more light earthy Substances, Crabs-eyes, Mother of Pearl, prepared Shells, calcin'd Horns and Bones, and, according to *Langius* and *Crato*, *Muscovy* Glafs. Nitre is also of singular Efficacy for extinguishing the Heat, and checking the intestine Motion; for which Reason it may be very advantageously mix'd with these Powders. But these correcting Powders must be diluted with a sufficient Quantity of a proper Liquor, and be exhibited frequently, and at proper Intervals. Nor are diluting and attenuating Medicines less beneficial, such as Emulsions of Almonds, and the Four cold Seeds, especially those of the Gourd, with Waters distilled from Flowers of a paretoric Quality, such as those of Elder, Roses, Bugloss, Cowslips, Limes, Lily of the Valley, as also black Cherry-water. This Intention is also answer'd by Jellies of the Shavings of Hartshorn, Milk mix'd with Water, Oil of sweet Almonds, sweet Whey, as also Broth, prepared of Fowls bruised and boiled in a close Vessel. These Medicines are highly beneficial for removing the Inflammation of the nervous and membranous Parts, which generally proves fatal in these Diseases: But they must be exhibited in a due Order, at proper Times, and in just Doses; in a Word, the following Cautions must be observed with respect to their Use.

Practical CAUTIONS and OBSERVATIONS.

As in the Cure of all acute Fevers, so more especially in those of the burning and inflammatory Kind, the best and safest Method is, thro' the whole Stages of the Disease, to proceed calmly and gently, and carefully to abstain from every thing both in Diet and Medicine, which may contribute to increase the Disease, or retard its Cure. *Celsus*, in the seventh Chapter of his third Book, gives us an excellent Caution with respect to this Particular, in the following Words: "The Patient, says he, is to be laid in a sufficiently large Room, that he may breathe a free and open Air: Nor is he to be loaded with a large Quantity of Clothes, but only to be cover'd with such as are light. The Leaves of the Vine, dipt in cold Water, may also be laid over his Stomach, in order to prevent his being rack'd with an immoderate Thirst;" for a moderate and equal Heat does more in these Fevers for the Correction, Resolution, and Evacuation of the morbid Matter, than any other Medicine whatever. But nothing is more prejudicial, than to increase the Heat by the Warmth of the Room, or an Abstinence from Drink, since, by this means, the Strength is impaired, the due Secretion of the peccant Humours from the vital Juices retarded, and the Moisture necessary for the free Circulation of the Blood and Humours, and for relaxing and opening the obstructed or constricted capillary Vessels, consumed. For this Reason, the frequent drinking of warm Infusions in burning Fevers, is so far from proving beneficial, that they often prove hurtful. But still more Injury is done by such Medicines as heat the Blood, throw it into a Commotion, and excite an actual Diaphoresis. For this Reason, *Celsus* justly commends a large Room, and the Access of a pure Air; for, as the subtle, ethereal, and elastic Substance in the Air, is the genuine Support of the elastic, vital, and systaltic Force of the Vessels, and of the Strength of the Parts, so the Air, when tainted with many moist and corrupted Effluvia, and consequently depriv'd of its Elasticity, is prejudicial to Persons in a sound State of Health, and much more to such as are indispos'd. Nor do I think, that any other Reason needs be assign'd, why so many of the Vulgar die of acute Fevers, whose Constitutions are otherwise able to overcome the Shocks of the Dislemper, than that they lie in little, low, and often overheated Apartments, in which, especially when there is a Number of Patients, the Air they breathe is sickly, and impregnated with noxious Exhalations.

But as Nature herself is the best Physician in continued Fevers, her Motions are carefully to be adverted to. These are principally exerted by the Rigor which proceeds from the spinal Marrow, with a Sense of Cold and Shivering, and happens at stated times, especially on the odd Days, the Half of the fourth Day, the seventh, the eleventh, and the fourteenth; for this Rigor is only a spasmodic Affection of all the nervous System, by which the Blood and Humours are driven, with a certain Violence, from the Surface of the Body towards the internal Parts, the Heart, the Brain, and the larger Vessels; for which Reason the Extremities are cold, but the internal Parts are too much filled and distended with Blood. Hence the Pulse is contracted, there is an Uneasiness about the Breast, and the Face, together with the Vessels of the Head, is swelled. But if, after this Rigor, the Humours driven inwards are, by an equal Force, and an enlarged Systole of the

Heart and Arteries, again driven towards the Surface of the Body, the Force of the Disease, and the morbid Cause, are often at once carried off and removed, either by a copious and universal Diaphoresis, or by a Discharge from the Nostrils. Thus a Rigor which is salutary, is justly, for that Reason, called critical; and, after it happens, the Pulse is equable and soft, the Circulation of the Blood carried on in a due manner, the Strength recruited, and the Patient rendered capable of enjoying his natural Rest. But when the systaltic Force of the Heart and Arteries is not so strong, as again to drive out the Blood, the Rigor is symptomatic, and of the bad Kind; for then the Body neither grows warm again, nor the Pulse equal; nor is there a Discharge of Blood from the Nostrils, nor an universal Diaphoresis, but only a partial and cold one about the Head and Neck; nor are the Body and Mind recruited, nor does the Patient become capable of his natural Rest. The Blood rather remains pent up internally in the small Vessels, and in the Brain occasions a Phrenitis and Convulsions about the Heart and Lungs, a violent Uneasiness of the Præcordia, a Difficulty of Breathing, and a Fainting, which is generally succeeded by Death on the ninth Day. Sometimes also these Rigors happen on the critical Days; but these are in like manner symptomatic, and prognosticate an unlucky Termination. These Motions, therefore, of Nature, as they are productive either of Death or Health, ought to be carefully attended to by the Physician; for on this depends, not only the whole Art of forming right Prognostics, and exhibiting Medicines seasonably, but also the Whole of Practice. This excellent Ground-work of observing the Motions of Nature was always kept in View by *Hippocrates*, and carefully inculcated by his faithful Interpreters *Hieronymus Mercurialis* and *Dietus*. But very few of the Moderns seem to be acquainted with it.

When Nature thus resolves to exert extraordinary Efforts, the Physician is to wait and direct nothing: The Patient is also entirely to abstain from Aliments, and the Body is only to be preserv'd in an equable and moderate Warmth. But if the Force of Nature alone is not sufficient for expelling the Blood, and promoting the Secretions, she is skilfully to be assisted internally, either by temperate Analeptics and Diaphoretics, or externally by Medicines of a deriving and discutient Quality; for the happy and seasonable Time of acting and exhibiting Medicines is never of more Importance, than in dangerous and acute Disorders.

When, after a Rigor, a Head-ach proceeding from a Plethora happens, with a beginning Commotion of Mind, and when a small Quantity of Blood drops from the Nostrils, I use an Epithem prepared of Vinegar and Rose-water, Camphire dissolv'd in Spirit of Roses, Nitre, and Oil of Rhodium, applied cold, not only to the Temples, but rather to the whole Head shav'd. This Medicine produces the happiest Effects by refrigerating, discussing, and resisting Inflammation. This same Epithem is of singular Service for alleviating the Anxiety, removing the Uneasiness, and facilitating the Respiration, if it is laid over the Præcordia with a Linen Cloth, consisting of three Folds. But the most immediate Relief for a Phrenitis is to be expected from opening the Veins of the Nostrils, whether by a Scarificator, or the Intrusion of the Point of a Straw, taking care to render the Legs and Thighs at the same time warm by Friction, and exhibiting internally a discutient, diaphoretic, and analeptic Mixture, with distil'd Vinegar, Waters of Cinnamon, Roses, Carduus Benedictus, and the Mixture Simplex, Cinnabar, Crabs-eyes, and the Bezoardicum Minerale.

In order to allay the Thirst, and moisten the parched Tongue and Fauces, I have observed no Medicine more efficacious, than half a Dram of the best Nitre dissolv'd in a Pint of sweet Whey; for this drunk frequently cold, and in small Draughts, surprisingly allays the preternatural Heat. The Mouth also and Fauces are now-and-then to be wash'd with Water, in which a sufficient Quantity of Nitre, and the Rob of Mulberries has been dissolv'd. This may also be exhibited as a Gargarism. But I can never approve of Injections by a Syringe, because, by their violent Attrition, they generally increase the Pain and Inflammation. Besides, in order to remove any Inflammation which threatens a Quinsy, this Linellus, gently swallow'd, is of singular Service.

Take of Conserve of Roses, one Ounce; of the best Nitre, fifteen Grains; and of Camphire, three Grains. Dissolve all in one Dram of the Oil of sweet Almonds.

Tho' the Exhibition of Purgatives, during burning Fevers, is proved to be highly dangerous, both from Reason and Experience, yet 'tis proper the Patient's Body should be always soluble under the Disease itself; therefore this Intention is best and most properly answer'd by Suppositories and Clysters, prepar'd only of Milk, Honey, and a little Nitre. But when a Crisis and due Concoction are form'd, which may be discovered from the Sediment of the Urine, it is expedient to render the Body soluble by the milder Laxatives, such as Preparations

tions of Manna, Tamarinds, Rhubarb, Raisins, and Tartar, that the peccant Juices in the *Primæ Viæ*, generated by the Disease itself, may be evacuated, lest they should lay a new and fresh Foundation for the like Disorder.

As Hoffman gives his Opinion against Purging, in the Sorts of Fevers here mentioned, I have not suppress'd it, in order to favour what I have said concerning purging in Fevers, under the Article CATHARSIS, to which I must refer the Reader.

The drinking cold Water, a Practice so highly extol'd by the Antients, is of singular and uncommon Efficacy in this Disease, and therefore deserves the greatest Attention and Regard of the Physician. But as we have already directed, when and in what Cases it is to be us'd, we shall only here observe, that it is never to be exhibited in large Draughts at one time, but successively and frequently; never in the Beginning of the Disease, but some Days after its first Attack; never in the Time of the Paroxysm, or whilst the Rigor lasts, or the Pulse is small and intermittent; in a Word, never till the Plethora is first remov'd: But it may be safely us'd when the Extremities are hot, and the Pulse equal, quick, and large.

If the Fever is bilious, acute, and highly dangerous, by reason of the bilious and corrosive Juices preying upon the nervous Coats of the Stomach and Intestines, some speedy and efficacious Remedy is necessary. In this Case, it is advisable to exhibit the absorbent and correcting Powders frequently, and in larger Doses than usual, in Conjunction with diluting and lenitive Liquors. For answering this Intention, I always recommend the following, as a Medicine of approv'd Virtue.

Take of the Powders of Crabs-eyes, Mother of Pearl, uncalcin'd Hartshorn, *Muscovy*-glass, or calcin'd Talc-stone, of each one Dram; and of Nitre, one Scruple; of which the Patient is, every Hour, to take one Dram, in two Ounces of an Emulsion of Almonds, to which two Drams of the Oil of sweet Almonds have been added.

But for checking the violent bilious Evacuations, my Anodyne Mineral Liquor is of singular Efficacy, especially if it is impregnated with a few Drops of the Oil of Mace, and exhibited in any fluid Vehicle, or only in cold Water; for, because it stops the too quick systaltic or peristaltic Motion of the biliary Ducts, a smaller Quantity of the bilious Juice is by that means thrown into the Duodenum, and, consequently, the too copious Discharge of it is stop'd.

I myself, says *Hoffman*, have known several Instances of a Cholera Morbus and Dysentery speedily remov'd by these Medicines, exhibited seasonably, and in proper Doses. *Frederic. Hoffman. Medicin. Rational. Systemat.* See FEBRIS.

CAUTERISATIO. Cauterising.

CAUTERIUM, *καυτήρ, καυτήριον*, from *καίω*, to burn. A Catery either actual or potential. See CAUSTICA.

CAVUS. Hollow. Many Parts of the Body are call'd by the Name of *Cava*, as is explain'd under the Article COLLA, which see.

CAYMANES. The *West Indian* Crocodile, or Alligator. See CROCODILUS.

CEANOTHOS. A Name for the *Carduus Vinearum repens*. See CARDUUS.

CEASMA, *κῆσμα*, from *κεῖω*, to split, or divide. A Fissure, or Fragment. *Hesychius*.

CEBI Gallinæ. The broil'd Liver of a Hen. *Castellus* from *Paulus Bagellardus de Morbis Puororum*.

CEBIPIRA *Brasilienfis*. *Marcgr.* *Cebipira Guacu*, and *Cebipira Miri*. Pison. Call'd also *Arbor Brasilensis Floribus speciosis spicatis, Pericarpio sicco*. Of the Bark, which is bitter and astringent, Baths and Fomentations are prepar'd, which are esteem'd excellent against Diseases arising from Cold, Tumors of the Feet and Belly, and those Pains of the Limbs which the *Portuguese* call *Curimentos*.

As it is astringent, and somewhat acrimonious, it is good in the Itch, Ring-worm, and cutaneous Disorders of the like Kind.

CEBUS. A Species of Monkey. *Castellus*.

CECIS, *κεκίς*. A Gall of the Oak. See QUERCUS.

CECRYPHALOS, *κεκρύφαλος*, and *κεκρύφαλον*. Properly a Net, in which the Women bound up their Hair, as it occurs in *Hippocrates*. It also signifies that Stomach, in ruminating Animals, which lies next before the Omasum.

CEDMAT'Α, *κέδματα*. Inveterate Defluxions of Humours on the Joints, especially that at the Hip, where the Os Femoris is articulated into the Acetabulum. These are frequently mention'd by *Hippocrates*. Sometimes also Defluxions on the genital Parts are call'd by this Name.

CEDRELÆUM. Oil of Cedar, as *Pliny* says, made of the Fruit of the Cedar, *malis Cedri*. *Bellonius* observes, that there is a Distinction betwixt the Cedrelæon and the Oleum Cedrinum. See CEDRIA.

CEDRELATE.

This Name, according to *Bellonius*, is derived from *ιλατήν*, the Fir-tree, and *κέδρεον*, the Cedar. Among Botanists it signi-

fies the great Cedar, a Tree of so immense a Bulk; as to exceed not only all the resiniferous and coniferous Trees, but also all the other Trees in the World.

CEDRIA.

This is sometimes call'd the Pitch, and sometimes the Refin, of the Cedar, flowing from the great Cedar; so that, properly speaking, it is nothing but the crude Tears of the Cedar. Some affirm, that this Substance is different from the *Cedrium*, or Oil of Cedar, which is of a more liquid and oleous Consistence: But, by Authors, it is promiscuously call'd *Cedria*, *Cedrium*, and *κεδρίλαιον, κεδρίαν, κεδρίαν, κέδριον*, according to *Goræus*, in *Definit.* *Pliny*, in the fifth Chapter of his twenty-fourth Book, informs us, that the great Cedar yields a Pitch call'd *Cedria*; and, according to *Ballonius*, *Galen* gives various Names to this Substance, calling it sometimes the Refin, sometimes the Tears, sometimes the Pitch, of the Tree, and sometimes *Cedria*; for he calls that which flows immediately from the Cedar-tree, *Refin*, or *crude Tears*, in order to distinguish it from that which is boil'd and prepar'd. According to *Salmassius*, the *Arabians* call the Oil of Cedar *Ketran*, or *Alketran*; and we, by a Corruption of that Word, commonly give the Name of *Cedrinum* to that Species of Pitch which is us'd for Ships. The *Greeks* call'd this Substance *ζάπιαον*, and *ἀπόχυμα*; and it is often mention'd by the Farriers, and other medicinal Writers among the *Greeks*: It was Pitch mix'd with Wax, in order to be laid on Ships, and differ'd much from the *Cedria*, which is the *Ketran* of the *Arabians*. Many of the *Greeks* confound the *κεδρίλαιον* and the *κεδρία*: but, in the Opinion of others, these are different Substances. The *κεδρία* is the Pitch of the Cedar-tree, whereas the *κεδρίλαιον* is an Oil obtain'd from the Pitch, which swims above it in boiling, and is collect'd with Wool.

Dioscorides, in his Description of the Cedar-tree, plainly makes this Distinction. What, in the Pitch of the Cedar-tree, was call'd *κεδρίλαιον*, was, in other kinds of Pitch, call'd *πιατέλαιον*. This was, as it were, the Serum of the Pitch, which, in boiling, floated on its Surface, and was received in clean Wool, spread upon the common Mass. The Name *πιατέλαιον* is also applicable to the *Cedrelæum*, inasmuch as this Oil is obtain'd from the Pitch of the Cedar-tree. And *Pliny* informs us, that the *Pisselæon* is made of the Juice of the Cedar-tree, or the *κεδρία*. *Dioscorides*, in the eighty-ninth Chapter of his first Book, speaks of the *Cedria* in the following manner: "That *Cedria* is best which is thick, pellucid, and " of a nauseous Smell, which, when pour'd out, does not " spread, but runs into Drops, and which has a Power of pre- " serving dead Bodies, and corrupting such as are alive; for " which Reason it is by some call'd *the Life of the Dead*. In " consequence of its remarkably heating and drying Quality, " it also corrupts Cloths and Skins. It is of singular Service, " as an Ingredient, in Collyriums, and Preparations for the " Eyes; for, when the Eyes are anointed therewith, it ren- " ders the Sight clear, and removes Films and Specks. It " kills the Worms of the Ears, when dropt into them with " Vinegar. It removes a Noise and Ringing of the Ears, when " pour'd into them, in Conjunction with a Decoction of Hyssop. " When put into hollow Teeth, it breaks them, and alleviates the " Pain. It produces the same Effect when the Mouth is " wash'd with a Mixture of it and Vinegar. If the Genitals " of Men are anointed with it before Venereal Intercourse, it " prevents Conception. In Quinsies, the Parts affected are to " be anointed with it; and it is of Service in Inflammations of " the Tonsils. It destroys Nits and Lice, if the Parts are " anointed with it. It affords Relief in the Bites of the Ser- " pent call'd *Ceraustes*, if it is laid on the Part affected, in Con- " junction with Salt. When exhibited in Raisin-wine, it is of " Service to Patients who have drank the Poison of the Sea- " hare. It proves beneficial in an Elephantiasis, when either " us'd internally as a Linctus, or externally by way of Oint- " ment. It deterges Ulcers of the Lungs; and, if a Cyathus " of it is taken, thoroughly cures them. Given by way of " Clyster, it kills *Ascarides* and other Worms, and expels the " Foetus. The Oil is separated from the *Cedria* whilst it is " boiling, by spreading Fleece of Wool above the Steam of it, " as in the Pitch; and its Virtues are the same in all respects. " It has this peculiar to it, that it cures the Scab of Quadrupeds, " Dogs and Oxen, if the Parts affected are strongly anointed " with it. It also kills the Tykes lodg'd in their Flesh; and " cicatrizes the Wounds they have received by being clip'd." The Reason why *Dioscorides* affirm'd, that it corrupts Skins, was, according to *Bellonius*, that it was formerly kept in the Skins of Animals, whereas in the Eastern Nations it is now kept in Bottles. *Pliny* comments, in the following manner, upon the Virtues of the *Cedria*, laid down by *Dioscorides*: "It " corrupts Garments, and kills Insects; for which Reason I " think it improper to use it in Quinsies; as also in Disorders " arising from Crudities, which some, in consequence of its " Taste, have advis'd. In Tooth-achs, I should also be afraid " to wash the Mouth with it and Vinegar; or to drop it into " the Ears, in order to remove a Dulness of Hearing, or kill " the Worms lodg'd in them. It is a fabulous Report, that it " prevents

“ prevents Conception, or procures Abortion, if the Genitals are anointed with it. I should not scruple to use it, by way of Ointment, in a Phthiriasis and scurfy Disorders. It is also order'd to be drank, in Raisin-wine, against the Poison of the Sea-hare; but it is much more properly used, as an Ointment, in the Elephantiasis.” If we compare this Passage of *Pliny* with what he says in the eleventh Chapter of his sixteenth Book, it appears, that *Pliny* advanc'd this not properly concerning the Cedria, which he calls Pitch, but concerning the Juice of the Cedar-tree, which he calls *Cedrium*, than which the former is thicker. In the mean time, whoever considers that, in the former Passage, *Pliny* ascribes some of the Things which *Dioscorides* wrote concerning the Cedria alone, to the Cedria, and others of them to the Juice of the Cedar-tree, will be ready to suspect, that, in the Days of *Pliny*, the same Thing was signify'd by the Names Cedria and Cedrium; or that this Author confounded the Cedria with the Cedrium, which, *Dioscorides* said, was a Fluid, flowing like Water in a Pipe, whereas the Cedria was a thicker Liquor. Besides, *Bauhine* is justly surpris'd, that *Pliny* did not find Fault with the Juice of the Cedar-tree in Ulcers of the Lungs, as he did in Quinsseys and Crudities, since, according to *Galen*, the Cedria not only irritates Ulcers, and excites Phlegmons, but is also of a septic Quality.

Hippocrates, in his Treatise *De Morb. Muliebr. Lib. 1.* for promoting the Conception of Women, orders the Use of a Pessary, prepar'd of about six Drams of Cedria, mix'd with four Drams of the Fat of Beef. According to *Prosper Martianus*, in his Annotations on *Hippocrates*, we have no Reason to wonder, that *Hippocrates* should recommend the Cedria for promoting Conception in Women, tho', according to *Dioscorides*, it prevents it, if the Genitals of Men are anointed with it; for, as much as the Constitution of a Woman differs from that of a Man, so much may the Effects of one and the same Medicine in a Woman, differ from those it produces on a Man, because the Constitution of a Woman is cold and moist, whereas that of a Man is rather hot and dry. For this Reason it is that the Barrenness of Women frequently arises from Coldness and Humidity, whereas the Vigour and Capacity of Men depend upon contrary Qualities. This Opinion not only prevails among the Vulgar, but was also receiv'd by *Hippocrates*, who, when the monthly Evacuations were duly made, and the Mouth of the Uterus in its natural Situation, always with an Intention to promote the Conception of Women, prescrib'd Medicines compos'd of Simples of a heating and drying Nature, which would prove highly prejudicial to Men. *Hippocrates*, in his Book *De Sterilitat.* has an Eye to this Diversity of Constitutions, when he advises a Woman, who has Intercourse with a Man with a View to Conception, to abstain from Food, but orders the Man to be nourish'd with proper Aliments. Because the Cedria is of a highly heating Quality, it may remove Sterility, by correcting the Coldness of the Uterus, when it remains in the Pudenda of Women, whereas the anointing the Man's Genitals with it may so overheat and dry the seminal Matter, in its Emission, as to render Conception impossible. If the Uterus is exulcerated by Child-birth, or an Inflammation, he orders us to deterge the exulcerated Part by an Injection of Butter, the Oil of Cedar, and a little Honey. This same Remedy he also prescribes in Ulcers of the Pudenda, and inveterate Ulcers of the Uterus. In order to make the Injection, he takes the Fat of a Goose and Resin, to which, when melted, he adds a small Quantity of the Oleum Cedrinum and Honey. But, in order to expel the dead Fœtus, he orders Galbanum, wrapt up in a Linen Cloth, and dipt in the Oleum Cedrinum, to be used by way of Pessary. *Celsus*, in the eighteenth Chapter of his fifth Book, gives us the *Malagma* of *Numenius* for the Gout, and other Indurations of the Joints, in which Cedria is also an Ingredient. *Scribonius Largus*, in his Work *De Compositione Medicamentorum*, gives us the Form of a Medicine of the Consistence of Honey, and compos'd of Vinegar, Alum, and Cedria, for rubbing the Teeth in the Tooth-ach. What the Cedria is, and how it is produc'd, are Points warmly disputed by different Authors; but those of the greatest Note are agreed, that it is a native Resin, obtain'd from the *Cedrus Major*, which is the *Cedrus Magna*, or *Libani confera*. See the Article LARIX ORIENTALIS. Some substitute, in the room of the Cedria, the Gum of the Juniper-tree, others the Oil of Juniper, others Pistekron, the Tears of the Fir, Ladanum, and the Juice of the Birch. See AMBRA.

CEDRINUM (*Pinum*), *κιδεύω* *ίνω*. Cedar-wine.

Cedrinum, Juniperinum, Cupressinum, Laurinum, Pineum, Abiegnum, all these sorts of Wines are prepared after the same manner, which is as follows:

They take thin Pieces of the Wood, newly cut from the Tree while the Fruit was upon it, and expose them to the Sun, or lay them in a Bath, or by a Fire, in order to obtain their Juice by Exsudation. A Pint of this Juice they mix with six Pints of Wine, and let it stand for two Months. They then pour it into another Vessel; and,

after exposing it for some time to the Sun, set it aside for Use. Observe that all factitious Wines must have their Vessels quite full, otherwise they will grow sour; and that medicated Wines are not good for Persons in Health.

All these Wines are heating, diuretic, and gently astringent; but the Laurinum, or Bay-tree Wine, is remarkably heating.

Cedar-wine is also prepar'd of the Fruit of the greater Cedar, by mixing half a Pound of the bruise'd Berries with six Pints of Must. This is to stand in the Sun forty Days, and then to be strain'd off, and put into Vessels. *Dioscorides, Lib. 5. Cap. 45.*

CEDRIS. The Fruit of the great Cedar. *Dioscorides* says they are heating, and prejudicial to the Stomach; but are good in Coughs, Convulsions, Contusions, and Stranguries: Taken with bruise'd Pepper, they provoke the Menses. *Dioscorides, Lib. 2. Cap. 105.*

CEDRITES, *κεδρίτης*. Cedrites is thus prepar'd:

They take the Pitch or Rosin which distills from the great Cedar, and wash it in fair Water; and then put one Cyathus (one Twelfth of a Pint) into each Ceranium, (a Measure containing nine Gallons) filling it up with Must.

This sort of Wine also heats, attenuates, is good for an old Cough, not attended with a Fever, for Pains of the Breast and Sides, the Gripes, Ulcers of the Belly and Intestines, an Empyema, the Dropsy, and Hysterics. It is effectual also against Worms, and in Rigors. It cures the Bites of venomous Creatures, kills Serpents, and eases Pains in the Ears, if instil'd into them. *Dioscorides, Lib. 5. Cap. 47.*

CEDRO. The Citron-tree.

CEDROMELA. The Fruit of the Citron-tree.

CEDRONELLA. Baum. See MELISSA.

CEDRUS. The Cedar.

The Characters are;

The Leaves are squamous, like those of the Cypress; the Flowers amentaceous, consisting of many minute Petals, furnish'd with many Apices; the Fruit is a Berry, which grows remote from the Flower on the same Plant, which is full of angulated Stones, containing an oblong Seed. *Boerhaave Index alter.*

Boerhaave mentions two Species of Cedar;

1. *Cedrus folio Cypressi; major; fructu flavescente*, C. B. P. 487. *Cedrus, Lycia, retusa Bellonio dicta*. J. B. 1. 300. *Oxycedrus, Lycia*. Dod. p. 853. *Juniperus, major, Dioscoridis*. Clus. H. 38. *Thuyæ genus quartum*. Lugd. 61. *Sabina, baccifera*. Lob. Ic. 220. 2. H.

This is a Shrub, rarely surpassing the Length of a Man in Height, with a crooked uneven Trunk, sending off many Branches, and cover'd with a rough Bark. Its Leaves are fleshy, and four of them are mutually connected in a continu'd Series, like those of the Cypress. Its Flowers are yellow, like those of the common Juniper; but situated on the Extremities of the Leaves, as in the Cypress and Thuia, or Arbor Vitæ. These Flowers are succeeded by a round Fruit as large as a Myrtle-berry, and which is first green, and then of a purple Colour. It becomes somewhat soft as it ripens, and has a Taste and Smell resembling that of the Juniper-berry. It has three, four, or more, oblong and striated Seeds, which contain a whitish kind of Medulla, whose Smell resembles that of Rosin. It flowers in the Spring; and, like the Juniper, bears its Fruit a great while before it arrives at Maturity. This Shrub first arises from a Seed; and, whilst it is yet tender, its Leaves are entirely dissimilar, and resemble those of the Juniper, only they are somewhat shorter and softer: But, when it is three or four Years old, its Leaves become round, and begin to resemble those of the Cypress; so that the inferior Branches are sometimes observ'd to carry pungent and pointed Leaves, whereas those on the superior Branches are obtuse and round. Unless this Metamorphosis is diligently adverted to, we may be easily impos'd upon, and induc'd to believe, that the young Shrub is a Plant of a different Species from that which is old and full-grown. It grows on the Coasts of the Tuscan Sea, in the maritime Parts of *Languedoc*, and in great Abundance about *Marseilles* and *Avignon*; it is also produc'd in Greece, and delights in cold and shady Places.

It is said to be of a heating and diuretic Quality, like common Juniper; and 'tis commonly reported, that the Steam of it, when kindled, banishes Serpents. According to *Dioscorides*, the Berries are moderately heating, astringent, and beneficial to the Stomach. When exhibited in Draughts of proper Liquors, they are highly efficacious against Disorders of the Breast, Coughs, Inflations, Gripes, and the Wounds inflicted by Serpents. They provoke Urine, and for that Reason are proper for Patients afflicted with Ruptures, Convulsions, and hysteric Fits. The Leaves contain a certain Degree of Acrimony, for which Reason either they themselves, or their Juice, may properly be drank in Wine against the Bites of Vipers; or the Part affected may be anointed with the same Preparation. The

Country-

Country-people of *Provence*, in *France*, apply the Leaves bruised to Carbuncles, in order to put a Stop to their Increase: They also use the Tops of the Trees, if we may believe *Garidel*, for Ropes and Slings to their Waggon and Carts. From the Berries, or the recent Wood, boiled in Must, is prepar'd the *Vinum Cedrinum*, or Cedar-wine, according to *Pliny*, in the sixteenth Chapter of his fourteenth Book. *Dale* informs us, that he saw an Author who expressly affirm'd, that, in *Carolina*, this Tree yielded a Gum so like the true *Olibanum*, that when he accidentally mix'd some Particles of it with *Olibanum* brought from *Europe*, they so much resembled other each, that they could neither be separated nor distinguish'd. Hence he concludes, that this is the Tree which produces the *Olibanum*.

2. *Cedrus*; folio *Cypressi*; media; majoribus baccis. *C. B. P.* 487. *Cedrus*, *Phœnicea*, altera *Plinii* & *Theophrasti*. *Lob. Ic.* 221. *Thuya*, *Massiliensium*. *Lugd.* 59. *Juniperus ex Gœd.* *H. L.* *Cedrus ex Gœd.* vulgô. *Sabina*, *Gœnfis*. *Rail H.* 1916. *Juniperus*, *Caroliniana*, *Thuyæ ramulis fuscis* & compressis, odoratior. *Plukin. Phyt. T.* 40. *F. g. H.*

Bierhaave makes the great Cedar of *Libanus* to be a Species of the *Larix*. It is thus distinguish'd by Botanic Authors:

CEDRUS, Offic. Chab. 71. *Cedrus Libani*, *Ger.* 1161. THE GREAT CEDAR-TREE OF LIBANUS, *Emac.* 1352. *Cedrus conifera foliis Laricis*, *C. B. Pin.* 490. *Rail Hist.* 2. 1404. *Cedrus conifera*, *Jonst. Dendr.* 315. *Cedrus magna, sive Libani conifera*, *J. B.* 1. 277. *Cedrus magna conifera Libani*, *Park. Theat.* 1532. *Larix Orientalis, fructu rotundo, obtuso*, *Tourn. Inst.* 586. *Elem. Bot.* 458. *Boerh. Ind. A.* 2. 180. CEDAR OF LIBANUS. *Dale*.

What we find mention'd in Scripture of the lofty Cedars, can be no ways applicable to the Stature of this Tree; since, from the Experience we have of those now growing in *England*, as also from the Testimony of several Travellers, who have visited those few remaining Trees on Mount *Libanus*, they are not inclin'd to grow lofty; but, on the contrary, extend their Branches very far: To which the Allusion made by the Psalmist agrees very well, when he is describing the flourishing State of a People, and says, *They shall spread their Branches like the Cedar-tree*.

Rouwolf, in his Travels, says, there were not, at that Time, (*i. e.* Anno 1574.) upon Mount *Libanus* more than 26 Trees remaining, twenty-four of which stood in a Circle; and the other two, which stood at a small Distance, had their Branches almost consumed with Age: Nor could he find any younger Trees coming up to succeed them, tho' he look'd about diligently for some. These Trees (he says) were growing at the Foot of a small Hill, on the Top of the Mountains, and amongst the Snow. These, having very large Branches, commonly bend the Tree to one Side; but are extended to a great Length, and in so delicate and pleasant Order, as if they were trim'd, and made even, with great Diligence; by which they are easily distinguish'd, at a great Distance, from Fir-trees. The Leaves (continues he) are very like to those of the Larch-tree, growing close together in little Bunches, upon small brown Shoots.

Maundrel, in his Travels, says, there were but sixteen large Trees remaining, some of which were of a prodigious Bulk; but that there were many more young Trees of a smaller Size: He measured one of the largest, and found it to be twelve Yards six Inches in Circumference, and yet sound, and thirty-seven Yards in the Spread of its Boughs. At about five or six Yards from the Ground it was divided into five Limbs, each of which was equal to a great Tree. What *Maundrel* hath related, was confirm'd to me by a worthy Gentleman of my Acquaintance, who was there in the Year 1720. with this Difference only, in the Dimensions of the Branches of the largest Tree, which, he assured me, he measured, and found to be twenty-two Yards Diameter. Now, whether Mr. *Maundrel* meant thirty-seven Yards in Circumference of the spreading Branches, or the Diameter of them, cannot be determined by his Expression; yet neither of them well agree with my Friend's Account.

Monsieur Le Bruyn reckons about thirty-five or thirty-six Trees remaining upon Mount *Libanus*, when he was there; and would persuade us, it was not easy to reckon their Number (as is reported of our *Stonehenge* on *Salisbury Plain*). He also says, their Cones some of them grow dependent; which is abundantly confuted by the above-mention'd Travellers, as also from our own Experience: For all the Cones grow upon the upper Part of the Branches, and stand erect, having a strong woody central Style, by which it is firmly annex'd to the Branch, so as, with Difficulty, to be taken off; which central Style remains upon the Branches after the Cone is fallen to Pieces, so that they never drop off whole, as the Pines do.

The Wood of this famous Tree is accounted Proof against all Putrefaction of Animal Bodies: The Saw-dust of it is thought to be one of the Secrets used by those Mountebanks

who pretend to have the embalming Mystery. This Wood is also said to yield an Oil, which is famous for preserving Books and Writings; and the Wood is thought, by my Lord *Bacon*, to continue above a thousand Years sound. It is also recorded, that, in the Temple of *Apollo* at *Urica*, there was found Timber of near two thousand Years old. And the Statue of the Goddess, in the famous *Ephesian* Temple, was said to be of this Material also; as was most of the Timber-work of that glorious Structure. *Miller's Dictionary*.

CEDUE. The Air. *Rulandus*.

CEDURINI. A Word made use of by *Paracelsus* in his Treatise *de Vita longa*; but he does not explain the Meaning of it; nor do I know, that any body has found it out.

CEIRIÆ, κείραι. Flat Worms. *Galen*.

CELASTRUS. The Staff-tree. See ALATERNUS.

CELATUS Aer is Air stagnating in Wells, or close Buildings, neither warm'd by the Sun, nor agitated by the Wind.

CELE, κήλη. A Hernia, or Rupture of any Kind.

CELERY.

Under the Article *APIUM* we have observed, that some Authors were of Opinion, that the Celeri, or Seleri, by the *English* call'd Celery, was only the *Apium Palustre*, improved by Culture. But others, with greater Justice, affirm, that the former is entirely different from the latter; since there are various Species of the Celeri not only distinct from the *Apium Palustre*, but different from each other. *Ray* is of Opinion, that the Celery arising in the *English* Gardens, from the Seeds imported from *France* and *Italy*, in a few Years degenerates into the *Apium Palustre*, on account of the Coldness and Inclemency of the Air; so that they who would have it genuine, must, when this Change happens, have recourse to these Countries for fresh Seeds. This Plant is possess'd of the same Virtues with the *Apium of the Shops* (which see). Those who are fond of Venereal Intercourses, love Brandy distill'd from the Seeds of the Celery. The Root, which is externally white, like a Turnep, and the interior Part of the Stalk, when well wash'd, and cut into Slices, are used as a Salad; and thought an uncommon Delicacy in the Winter, and latter End of the Autumn. The Manner of preparing them is with Oil and Pepper, and many add Salt and Vinegar. The Root is also boil'd with Flesh and Fish, in order to render them more delicious. Some are also fond of the Seeds preserved with Sugar.

CELLFOLI. The same as COELIFOLIUM, which see.

CELIS, κελίς. A Spot, or any Mark, upon the Skin.

CELLA. A Cell. In Anatomy, a great many small Cavities of the Body are call'd Cells.

Cells, in Botany, are those Partitions or hollow Places in the Husks or Pods of Plants, in which the Seed is contain'd.

CELLULA. A small Cell.

CELLULOSA MEMBRANA. The Cellular Membrane, call'd also *Membrana Adiposa*. This Membrane is of a vascular Texture, and forms innumerable Cells, communicating with each other, in which the Fat is lodged. These Cells are capable of a prodigious Distention, by a very small distending Force. In a Consumption they are so much wasted, that the least Traces of them are not perceptible. When, in an Emphysema, they are distended with Air, they swell to an enormous Bulk; as also in an Anasarca, when fill'd with Water. This Membrane invests all the moveable Parts of the Body, and, by its Interposition betwixt the internal Part of the Skin and external Surface of the Muscles, renders the Skin moveable, whilst the Muscles are at Rest. Hence where the Muscles, which are most in Motion, are situated, there this Membrane is found to be naturally thickest, and most replete with Fat; as is visible on the Breast, Abdomen, Back, Loins, Buttocks, Thighs, Legs, Shoulders, Arms, Temples, and Neck. But in those Parts where the Muscles are very small, or their Action inconsiderable, it is furnish'd with so little Fat, that most Anatomists have deny'd, that in those Places it is to be found. Thus, in the Head, Eyelids, Face, and Scrotum, they affirm, that there is no such thing; but, however, erroneously; for in these Parts it really exists, but is less, in Proportion, as the *Elevator Palpebræ superioris*, and *Corrugator Frontis*, is less than the *Glutei*. But as this Membrane separates the Muscles from the Skin, so it lies betwixt the Muscles, and separates every individual Muscle of the Body from every other Muscle, that they may move upon each other without Difficulty: It forms also Vaginae for the Tendons of the Muscles, that they may readily move backwards and forwards, without any Hindrance. It farther accompanies the Heads and Tendons of the Muscles to their Origins from, and Insertions into, the Bones; where it is expanded upon the external Periosteum, Bones, and Ligaments of the Joints, which it involves, and insinuates itself to the Viscera under the Meninges, Pleura, and Peritonæum. Besides the Involucrum, or Covering, which the Cellular Membrane gives to each Muscle, as above-mention'd, every individual muscular Fibre is cloth'd with a Pro-
duction thereof; by the Intervention of which every Fibre is separated,

separated, and distinct from every other Fibre. This Membrane, therefore, on account of its incredible Expansion, and the Communication of its Cells with each other, carries on an Intercourse between the Parts of the Body the most remote from each other; betwixt the Skin, for Example, and the Marrow of the Bones; for, as it reaches from the Skin to the external Periosteum, and as the Matter which forms the Marrow is convey'd to the Bone, and a Portion of it reconvey'd back again, by the Vessels of the Periosteum, the Way is obvious how these remote Parts may communicate. *Boerhaave* says, he is convinced of this Structure, and these Uses, of the Membrana Cellulosa, by incontestable Experiments; and that the Knowledge of it is indispensably necessary, both for understanding and curing an Inflammation, Suppuration, Gangrene, Scirrhus, Cancer, Atheroma, Steatoma, Meliceris, Splacelus, and Dropsy.

Boerhaave thinks, that this Membrane is the Part principally affected in the Venereal Disease.

Chefelden says, that the Cells of this Membrane communicate, throughout the whole Body, so much, that, from any one Part, the Whole may be fill'd with Air. I have seen two Cases, says he, where the Wind-pipe being cut, and the external Wounds being closely stitch'd by injudicious Surgeons, the Air, which escaped at the Wound of the Wind-pipe, getting into the Cells of the Membrana Adiposa, blew up the upper Part of the Body like a Bladder. The like Accident I have seen from a broken Rib, where, I suppose, the End of the Rib had prick'd the Lungs: All these Persons died. In these Cells the Water is contain'd in an Anasarca, which, from its Weight, first fills the depending Parts, as the Air, in the former Cases, did the upper Parts; and, when these Cells are very full, the Water frequently passes from them into the Abdomen; and, after tapping, tho' the Limbs were ever so full, they will almost empty themselves in one Night's time. This Membrane is the usual Seat of Impostumations and Boils, in both which Nature, uninterrupted, always corrodes a Hole in the Skin; from whence we may learn, that the best Way of opening any Impostumation is by a Hole, and that too as near the time of its breaking naturally as may be, that Nature may make the utmost Advantage of the Discharge. There is sometimes a large kind Boil or Carbuncle in this Membrane, which first makes a large Slough, and a Number of small Holes thro' the Skin, which in time mortifies, and casts off; but the longer the Slough is suffer'd to remain, the more it discharges, and with the more Advantage to the Patient; at the latter End of which Case the Matter has a bloody Tincture, and a bilious Smell, exactly like what comes from Ulcers in the Liver; and both these Cases are attended with sweet Urine, as in a Diabetes. *Chefelden*.

CELSA, in *Paracelsus*, imports a certain Flatus or Vapour, confined within the Integuments, and seeking a Passage thro' them. He means, I suppose, the same which the Vulgar calls the Beating of the Life-blood.

CELSUS. A celebrated medicinal Author, in great Esteem both for the Elegance of his Style, and his Doctrine. See the *Preface*.

CELTIS. The Nettle-tree.

The Characters are,

The Flower is shaped like a Rose, polypetalous, and furnish'd with many short Stamina: The Ovary, which is fork'd, becomes a round Berry, full of a roundish Seed. *Boerhaave's Index alter Plantarum, Vol. 2.*

Boerhaave takes notice of three Species of this Plant.

1. *CELTIS*, Offic. *Celtis*, *Lotus Arbor*, Mont. Ind. 39. *Celtis fructu nigricante*, Tourn. Inst. 612. Elem. Bot. 485. Boerh. Ind. 2. 231. *Lotus Arbor*, Ger. 1308. Emac. 1493. Park. Theat. 1522. Rati Hist. 2. 1483. *Lotus fructu Cerasi*, C. B. Pin. 447. *Lotus Arbor fructu Cerasi*, J. B. 1. 229. Chab. 16. *Lotus domestica*, Jonsl. Dendr. 90. THE NETTLE-TREE.

It grows in France and Italy. The Fruit, which is used in Medicine, is astringent, and binds the Belly; but has least of these Qualities when ripe. The Decoction thereof is good for a Dysentery, and for Women labouring under an immoderate Flux of the Menstrues. *Dale*.

2. *Celtis*; fructu nigricante; folio variegato. *H.*

3. *Celtis*; Africana; procera; fructu flavo. *H.* *Boerhaave's Index alter Plantarum, Vol. 2.*

CEMBRO, five *Pinus cui Officula fragili Putamine*. J. B. *Pinus sylvestris montana tertia*. C. B. *Pinus sylvestris altera fructifera*, Tadu Arbor fortè. Park. *Pinus sylvestris secunda*, Ger.

This is a Species of Pine, which, *Ray* informs us, grows in the Country of the *Grisons*, where the Inhabitants eat its Fruit. I find no particular Virtues ascrib'd to it.

CEMENTATIO, or *CEMENTATIO*. See *CALX*, and *CORMENTUM*.

CEMENTERIUM. An Aludel. *Rulandus*.

CEMENTUM. See *CORMENTUM*.

CENCHRAMIS, *κνγχραμνις*. A Grain or Seed of the Fig. When *Hippocrates*, in his Treatise of the Diseases of Women,

directs Figs to be used for a Pessary, he orders them to be boil'd till the Seeds drop out.

CENCHRIAS, *κνγχελιας*. A Serpent, call'd also *Ammodytes*, of which *Aetius* gives the ensuing Account: This Animal is a Cubit in Length, at most, being never represented larger by Description nor Delineation. It is of a sandy Colour, mark'd with black Spots over it: Its Tail is very hard, and fork'd at the Top; and some give it the Name *Cenchrias*, from the Hardness of its Tail, which, in that respect, resembles *Cenchros*, *κνγχρως*, Millet. It has wider Jaws than the Viper; and, tho' it be like it in many other respects, may be most easily distinguish'd by the Colour, for the Viper is yellowish.

The Bite of this Serpent is generally follow'd by speedy Death: If the Patient survives a while, Blood flows from the Wound, and the Place swells; in a little time after, Sanies is discharged, which is follow'd by a Heaviness of the Head, and a Lipothymy, and Death, in the Space of three Days, where the Symptoms are the most favourable; tho' some have surviv'd to the seventh Day. The Bite of the Female is the most speedily mortal.

The Method of Cure is, first, by common Remedies, as by Cupping, and Scarifying all round the Place, Constriction of the Parts above the Bite, and making Incisions in the Wound. Peculiar Medicines are Mint, drank in Hydromel; Castor, Cassia, and the Juice of Mugwort, taken in Water: The Patient is also to take Theriaca; and the same is to be apply'd to the Wound. Drawing Plaisters are also to be used; and afterwards Cataplasms proper for Noisæ, or spreading Ulcers. *Aetius, Tetrab. 4. Serm. 1. Cap. 25.*

The Bite of the *Cenchrias* is like that of the Viper, and is succeeded by a Tumor like an hydropical one; after which the Flesh putrefies, and falls off, the Patient is seiz'd with a Lethargy, and falls into a profound Sleep. *Erassistratus* says, that the Liver, Bladder, and Colon, are affected; for, in Dissections, these Parts are found to be corrupted.

Outward Applications, proper for the Bite of this Serpent, are the Seeds of Lettuce, Linseed, bruised Savory, wild Rue, with Mother of Thyme, and Hasta Regia, or King's-spear, bruised together. The Patient must immediately take two Drams of the Root of Centaury, or of Birthwort, in a Quarter of a Pint of Wine: Nasturtium also, and Gentian, are proper in the like Case. *P. Aegineta, Lib. 5. Cap. 16.*

CENCHRITES, or *ACONTIAS*, is a Serpent, two Cubits in Length, of a tapering Figure, of a green Colour, especially about the Belly, so as to resemble Millet; whence it is, by some, call'd *Cenchrias* (see the preceding Word); and, they say, it is more robust than usual when Millet is in Flower. When it prepares to bite, it stretches itself out, and throws itself like a Dart upon the Object where it aim'd to do a Mischief, and inflicts a Wound after this manner.

The Bite of this Serpent is succeeded by all the Symptoms consequent upon the Bite of the Viper, and even worse; such as the Putrefaction and Falling-off of the Flesh, and a more deplorable Death. The Remedies, in this Case, are the same as those prescrib'd against the Bite of the Viper. *Aetius, Tetrab. 4. Serm. 1. Cap. 27.*

The same medicinal Virtues are attributed to the Flesh of these Serpents, as to that of the Viper.

CENCHROS, *κνγχρως*, Millet. See *MILIVM*, The Seeds of Millet are sometimes, in *Hippocrates*, call'd *κνγχελιας*.

Hence *κνγχροειδεις ιδρωτες*, Miliary Sweats, or Sweats which break out in Drops as large as the Seeds of Millet. And *την χυσματα κνγχροειδεια*, Miliary Asperities, or Miliary Eruptions, which *Hippocrates*, in the Beginning of his second Book of Epidemics, describes as attending a certain epidemical Fever, with these Circumstances, that they did not cause much Itching, that they appear'd upon Women only, and that all who had them recover'd.

Sir David Hamilton has wrote a Treatise expressly upon the Miliary Fever, an Account of which Disorder see under the Article *MILIARIS Febris*.

CENEANGIA, *κινανγια*, from *κενδς*, empty, and *αγγος*, a Vessel. Any Inanition of the Vessels. It is used to express Abstinence, or Fasting, with a View of emptying the Vessels.

CENEBRIA, *κινεβρια*. An Epithet for Flesh, importing the Flesh of Animals which die of themselves, Carrion.

CENEONES, *κινεωνες*, from *κενδς*, empty. The Flanks; the Space on each Side, betwixt the spurious Ribs and the Os Ileum.

CENIFICATUM, or *CINIFICATUM*. Calcin'd. *Rulandus*.

CENIGDAM. See *CENIPLAM*.

CENIOTEMIUM. A purging Remedy, effectual in Venereal Disorders, which *Paracelsus* mentions, without saying what it is. It is supposed to be some mercurial Preparation.

CENIPLAM, *Cenigdam*, *Cenigotam*, or *Cenipolam*. *Rulandus* says, this is a Name for a surgical Instrument, with which the Cranium is open'd in an Epilepsy.

CENOSIS,

CENOSIS, κένωσις, from κενός, empty. Evacuation. In *Hippocrates*, κένωσις must be distinguish'd from κἀθάρασις, the former importing a general Evacuation of all the different Sorts of Humours together, by any means whatever; the latter, an Evacuation of some particular Humour, when offensive with respect to its Quality.

CENTAURIUM majus. The greater Centaury.

The Characters are;

It has a perennial Root; the Leaves are not prickly, but serrated on the Edges; the Flower-cup is squamous, and void of Prickles; and the Flower of a large and beautiful Size. *Boerhaave Index alter*.

Boerhaave mentions nine different Sorts of this Plant.

1. Centaurium; majus; Orientale; erectum; glasti folio; flore luteo. *T. Cor.* 32. *Commel. Rar.* 39. *Jc. & Desfer.*
2. *Rhaponticum fulsum*, Offic. *Rhaponticum folio Helenii incano*, C. B. 117. *Rhaponticum Enulæ folio latiore*, Park. 156. *Rha Capitatum Lobelii*, Ger. 316. *Emac.* 393. *Centaurium majus*, *Rha Capitatum folio Enulæ subtus incano & hirsuto*, J. B. 3. 41. *Rail Hist.* 1. 331. *Chab.* 345. *Hist. Oxon.* 3. 132. *Centaurium majus folio Helenii incano*, *El. Bot.* 355. *Tourn. Inst.* 449. *Boerh. Ind. A.* 143. **RAPONTIC.**

This is cultivated in some Botanic Gardens; the Root is thick, oblong, and dense; brown externally, and when cut transversely, of a yellowish Colour internally. It is of a bitterish and somewhat acrid Taste, subastrigent, and of a pretty grateful Smell. *Dale*.

3. Centaurium; majus; folio Helenii, angustiore. *T.* 449.
4. Centaurium; majus; Alpinum, luteum. *C. B. P.* 117. *Prodr.* 56. *M. H.* 3. 132.
5. Centaurium; folio Cinaræ. *Corn.* 72.
6. *Centaurium majus*, Offic. *Chab.* 344. *Centaurium magnum*, Ger. 436. *Emac.* 546. *Rail Hist.* 1. 329. *Centaurium majus vulgare*, Park. 469. *Centaurium majus folio in laciniis plures diviso*, C. B. Pin. 117. *Tourn. Inst.* 449. *Boerh. Ind. A.* 144. *Centaurium majus juglandis folio*, J. B. 3. 38. *Hist. Oxon.* 3. 131. **GREAT CENTAURY.** *Dale*.

The great Centaury has a large Root, of a reddish Colour on the Outside, running deep into the Ground: From which arise many large long Leaves, green above, whitish and hoary underneath, deeply cut into several Sections, which are serrated about the Edges; tho' sometimes they are whole, and not cut in at all, but only serrated. The Stalks grow to be five or six Feet high, thick, and divided into several Branches, on which grow smaller and more divided Leaves; at the End of them come forth large round scaly Heads, out of which arise a Cluster of fistular purplish Flowers, which afterwards turn into Down, inclosing shining longish Seed.

It grows in some of the mountainous Parts of Italy, and flowers in July.

The Root, which is the only Part used, is drying and binding, and good for all kinds of Fluxes; stops Bleeding either at the Nose or Mouth, or any other Part; and is of great Use to heal Wounds, taking its Name, says *Pliny*, from the Centaur *Chiron*, who cured himself of a Wound he receiv'd by one of the Arrows of *Hercules*, by the Use of this Plant. It is very rarely used. *Miller's Bot. Off.*

The Root is long, strait, and thick; of a reddish-brown Colour externally, but of a lighter-red internally; of a sweetish and subacid Taste. It has the Reputation of opening Obstructions in the Liver, and corroborating that Part. It is also used in Hernias.

7. Centaurium; majus; flore exalbido. *Ind.* 54.
8. Centaurium; majus; alterum; laciniatum; purpurascens flore. *H. R. Par.*
9. Centaurium majus; folio molli, acuto laciniato, flore aureo magno; calice spinoso. *Boerhaave's Index alter Plantarum.*

Dalé mentions another Species of the **CENTAURIUM MAJUS**, which is the

Rhaponticum, J. B. 2. 989. *Chab.* 310. *Rhaponticum siccatum*, Ger. 317. *Emac.* 395. *Rhaponticum genuinum*, Park. 155.

It is not much unlike the *Rhaponticum fulsum*, either in Appearance, or Virtues.

CENTAURIUM MINUS, The lesser Centaury.

The Characters are;

The Leaves are conjugated; the Flower-cup long, tubulous, pentagonal, quinquefid, with sharp-pointed Segments; the Flowers monopetalous, pentapetaloid, Funnel-shaped, perforated at the hinder Part, furnished with five Stamina, and disposed almost in the Shape of an Umbella; the Fruit is generally oval, cylindrical, or conical, producing a long Tube, when ripe, cleaving into two Parts, divided into two distinct Cells, which are full of numerous little Seeds. *Boerhaave's Index alter*.

Boerhaave takes Notice of four Sorts of the lesser Centaury.

1. **CENTAURIUM MINUS**, Offic. C. B. Pin. 278. **SMALL PURPLE CENTAURY**, *Rail Hist.* 2. 1092. *Synop.* 3. 286.

Chab. 447. *Boerh. Ind. A.* 223. *Tourn. Inst.* 122. *Elem. Bot.* 102. *Dill. Cat. Giff.* 127. *Buxb.* 60. *Centaurium minus vulgare*, **THE ORDINARY SMALL CENTORY**, Park. *Theat.* 272. *Merc. Bot.* 1. 28. *Phyt. Brit.* 25. *Centaurium minus flore purpureo*, J. B. 3. 353. *Centaurium minus rubrum*, *Hist. Oxon.* 2. 566. *Centaurium parvum*, Ger. 437. *Emac.* 547. *Mer. Pin.* 24. **CENTAURY.** *Dale*.

The common small Centaury seldom grows to be above a Foot high, full of square Stalks, having two oblong round-pointed Leaves, set on without Foot-stalks at each Joint. The Flowers grow Umbel-fashion, many together, on the Tops of the Branches, consisting of a simple Leaf apiece, cut into five Petals, laid open like a Star, with several small yellow Stamina in the Middle, standing in a long hollow Calyx; they are of a beautiful red Colour. The Seed is very small, included in a slender Seed-vessel. The Root is small and sticky, perishing every Year.

It grows in Fields, and dry Pasture-grounds; and flowers in June and July.

Centaury is of a very bitter Taste, and of an aperitive cleansing Faculty, opens Obstructions of the Liver and Spleen, provokes Urine and the Menses, helps the Jaundice and intermitting Fevers, strengthens the Stomach, and destroys Worms; outwardly it is used in Fomentations, against Swellings and Inflammations.

Official Preparations are only an Extract. *Miller's Bot. Off.*

The Leaves and the Flowers are intolerably bitter; and, for all that, they give a considerably Tincture of red to blue Paper; which makes us conjecture, that the Salt of this Plant is not very different from that which is natural in the Earth, which is very bitter. We have the same Reason to believe, that the Salt of the small Centaury is mixed with a considerable Quantity of Sulphur and Earth; but in such a manner, that the Sal Ammoniac is more disengaged in it, than the other Principles. The Salt which is found in the Aloes, in the Jesuit's-bark, and Ipecacuanha, is much of the same Nature; for these Substances, which are very bitter, give a red Colour to the Solution of Tournesole; that is, the Aloes, a beautiful red, and the two others a gride-lin: Thus it is no Wonder, that the small Centaury should be febrifugous, laxative, and aperitive; that it should kill Worms, and re-establish the Functions of the Primæ Viæ. They infuse a Handful of the Tops of this Plant in a Glass of White-wine; but as the Infusion is very bitter, it is better to make the Extract of Centaury, and give a Dram of it; or mix it with as much Powder of Jesuit's-bark, chiefly for intermitting Fevers, when there are Obstructions in the Bowels; for in these Cases the Patients are cured without any Return. The Infusion or the Decoction of the small Centaury is vulnerary, deterlive, and very resolvent, if applied externally. *Martyn's Tournefort*.

2. Centaurium; minus; flore albo. *H. Eycl. Vern.* o. 5. *F. 8. Fig. 3.* *C. B. P.* 278. *J. B.* 3. 353. *H. R. Par.*
3. Centaurium; minus; caryophylloides; Africanum; sempervirens. *Par. Pat. Prod.* 321.
4. Centaurium; luteum; perfoliatum. *C. B. P.* 278. *J. B.* 3. 355. *M. H.* 3. 565. *Boerhaave's Index alter Plantarum.*

CENTIMORBIA. A Name of the **NUMMULARIA**, which see.

CENTINERVIA. Plantain. See **PLANTAGO**.

CENTINODIA. A Name for the **POLYGONUM**, which see.

CENTRATIO. A Term employ'd by *Paracelsus*, to express the degenerating of a saline Principle, and contracting a corrosive and exulcerating Quality. Hence *Centrum Salis* is said to be the Principle, or Cause of Ulcers. *Castellus*.

CENTRION, κέντριον, from κεντρίω, to prick. An Epithet for a Plaster in *Galen*, calculated against Stitches in the Side.

CENTRUM. The Centre, in the chymical Language, imports the principal Residence, Foundation, or Source of any thing: And also that Part of a Medicine in which its greatest Virtues reside.

CENTUM CELLIS, in *Rhodius's* Notes to *Scribonius Largus*, signifies the Town now call'd *Civita Vecchia*, formerly famous for excellent Chalybeate Waters.

CENTUNCULUS, the same as the **ALSIUM**, which see, *Blancard* says it is the **GNAPHALIUM**.

CEPA. The Onion.

The Characters are;

The Root is bulbous, tunicated; or consisting of Coats, orbicular; the Leaves fistulous; the Stalk fistulous, swelling into a Belly, which is turbinated on both Sides; the Flowers hexapetalous, and collected into a spherical Head or Corymbus; the Style of the Flower becomes a roundish Fruit, tricapular, full of roundish Seeds. *Boerh. Index alter P.*

Boerhaave takes notice of ten Sorts of Onions,

1. *Cepa*, Offic. *Cepa vulgaris*, C. B. Pin. 71. *Elem. Bot.* 304. *Rail Hist.* 2. 1116. *Hist. Oxon.* 2. 383. *Cepa alba & rubra*, Ger. 134. *Emac.* 169. *Park. Parad.* 512. *Cepa vulgaris*

garis floribus & tunicis candidis & purpurascensibus, Tourn. Inst. 382. Boerh. Ind. A. 2. 144. Rupp. Flor. Jen. 123. Buxb. 62. *Cepa rubra & alba, rotunda & longa*, J. B. 2. 547. *Cepa vel Cape*, Chab. 200. ONIONS. Dale.

This is a well-known Root, having a large round flat Body, cover'd with a thin reddish Skin, and compos'd of several Coats one over another, with a Bunch of small Fibres at the Bottom; the Stalk grows to be about two Feet high, with a few green hollow fistular Leaves, and at the Top a kind of round Umbel, of numerous small six-leav'd Flowers, succeeded by three square black Seeds. The whole Plant is of a strong, and, to many, an offensive Smell, making the Eyes water upon peeling or cutting. It is cultivated in Gardens; the Root only is used.

Onions are of great Use in the Kitchen, being not only put into Sauces, and Pottages, but eaten as Food. They are somewhat windy, but otherwise very wholesome for those who abound with cold and moist Humours, and are helpful against Coughs and Diseases of the Breast; beaten into a Cataplasm with a little Salt, they are a very good Remedy to fetch out the Fire in Burns or Scalds, when the Skin is not off. *Miller's Bot. Off.*

We are convinc'd by Experience, that Onions, especially when externally apply'd, are possess'd of very singular medicinal Virtues; for nothing is of greater Efficacy in softening hard Tumors, and maturing venereal Buboes, than roasted Onions, especially when apply'd in Conjunction with Figs. They also afford a speedy Relief, if applied to the Pubes of Children labouring under a total Suppression of Urine. There is also in all the various Species of Garlicks and Onions, a certain subtle caustic Salt, of a highly penetrating and blistering Quality, which, when applied immediately to the nervous Parts, excites violent Pains, and sometimes an Inflammation. According to *Caspar Hoffman*, in the fifth Book of his *Institut. Med.* the Juice of Onions, entering Wounds, prevents their Consolidation; and taints Knives and Instruments, as it were, with a gentle Poison; which deserves to be adverted to, that we may guard against the Consequences. But Onions are daily used internally, without producing any bad Effects. *Hoffman de Præstantia Remed. Domestice.*

2. *Cepa; vulgaris; floribus & tunicis candidis. C. B. P. 71. M. H. 2. 383. THE WHITE SPANISH ONION.*

3. *Cepa; oblonga. C. B. P. 71. Dod. p. 687. M. H. 2. 383. THE STRASBURGH ONION.*

4. *Cepa radiceis tunicâ buxâ. K.*
5. *Cepa ascalonica*, Offic. *Cepa ascalonica*, Matth. 1. 556. Hist. Oxon. 2. 383. Tourn. Inst. 382. Elem. Bot. 304. Boerh. Ind. A. 2. 144. Rupp. Flor. Jen. 123. *Cepa ascalonica sive fissilis*, J. B. 2. 551, Chab. 200. *Cepa sterilis*, C. B. Pin. 72. *Cepa ascalonica sive ascalonitides*, Park. Parad. 513. *Ascalonitides*, SCALLIONS, Ger. Emac. 170. BARRIEN ONIONS, ESCHALOTS.

The Root of this is employ'd for culinary Uses. It is esteem'd heating, drying, inciding, aperient, provocative. It excites an Appetite, and destroys Worms in the Intestines. Dale.

6. *SCHOENOPRASSUM*, Offic. Ger. 139. Emac. 176. Park. Theat. 870. *Porrum scitivum juncifolium*, C. B. P. 72. *Porrum juncifolium*, Offic. Comm. Plant. Usual. 65. *Porrum scitivum & Schoenoprassum quorundam*, J. B. 2. 553. Raii Hist. 2. 1117. Chab. 200. *Cepa scitilis*, Rupp. Flor. Jen. 123. *Cepa scitilis juncifolia perennis*, Hist. Oxon. 2. 383. Tourn. Inst. 382. Elem. Bot. 304. Boerh. Ind. A. 2. 144. CIVES or CHIVES.

It agrees in Virtues with Onions.

7. *Cepa; fissilis; Matthioli. Lugd. 1539. C. B. Pin. 72. CIBOULE.*

8. *Cepa; sylvestris; tenuifolia; prolifera & florifera. See ALLIUM SYLVESTRE.*

9. *Cepa; Lusitanica; foliis capillaceis; minima; flore purpurascens. T. 385.*

10. *Cepa; Alpina; palustris; tenuifolia. T. 385. Boerhaave's Index alter Plantarum.*

CEPÆA. Base Orpine. See SEDUM.

CEPASTRUM. Dale includes under this Title the *Allium sylvestre*, Crow-garlick. See ALLIUM. The *Cepa Ascalonica*, Eschalots, and the *Schoenoprassum*, Chives. See CEPÆA. These, he says, agree with the *Cepa*, with respect to their fistulous Leaves, and strong Smell; but disagree as to their Roots, which are proliforous; and their Stalks, which are not bellied like those of the *Cepa*.

CEPHALÆA, κεφαλαία. A sort of Head-ach. See CEPHALALGIA.

CEPHALALGIA, κεφαλαλγία, from κεφαλή, the Head, and άλγος, Pain. A Head-ach.

CEPHALÆA, κεφαλαίη, and *Cephalalgia*, are Affections of the Head, which differ in Degree; for a *Cephalæa* is an inveterate and obstinate *Cephalalgia*, according to *Arctæus*, Lib. 1. Cap. 2. de Caus. & Sign. Chron. Morb. where he says, "A

" sudden Pain of the Head, from any transient (περὶ κεφαλῆς) Cause, tho' it may last for several Days, is call'd a *Cephalalgia*; but if the Pain be grown inveterate, and accusom'd to make long and frequent Returns, and becomes more and more violent, and difficult to cure, we call it a *Cephalæa*."

The Author of the *Definitiones Medicæ* says, "A *Cephalæa* is an Affection of the Head, causing an intolerable Pain at certain Periods of Time, attended with a Ringing in the Ears, and Redness of the Eyes, a Distention of the Veins in the Forehead, and a red Colour in the Face."

As Dissections of Persons who have died of severe Head-achs, which have been related by Authors, are too numerous to be inserted in this Place, we shall here abridge some of the most curious and important Observations relating to *Cephalalgias*, collected by the celebrated *Bonetus*; taking care, at the same time, not to omit any Circumstance of Moment, nor to pass over any Phenomenon which has the least Tendency either to inform the Judgment, or direct the Practice, of the Surgeon and Physician.

OBSERVATION I.

A certain Merchant, about forty Years of Age, of a melancholic Habit, and deeply involved in the Cares of the World, was, during the Dog-days, seiz'd with a violent Pain of his Head, which some time after oblig'd him to keep his Bed.

I, being call'd, order'd Venesection in the Arms, the Application of Leeches to the Vessels of his Nostrils, Forehead, and Temples, as also to those behind his Ears; I likewise prescrib'd the Application of Cupping-glasses, with Scarification, to his Back: But, notwithstanding these Precautions, he dy'd on the fourth Day, without the Appearance of any fresh Symptom. If any Surgeon, skill'd in Arteriotomy, had been present, I should have also order'd that Operation.

Upon opening the Cranium, the Vessels of the Meninges and Brain were found somewhat livid, and so turgid with Blood, that the Cranium scarce seem'd capable of containing the Brain. In the anterior Part of the Brain, near the Forehead, there was found a small Abscess, about the Bulk of a Nut, full of Serum, and yielding to the gentlest Touch.

OBSERVATION II.

A certain Lady of Distinction, who had for several Years been subject to spasmodic Disorders, began at last to complain of a violent Pain, and Sense of Weight, in her Head; and happening, about the Beginning of the Night, to awake out of a sound Sleep, she was seiz'd with a convulsive Fit, which suddenly degenerated into a fatal Apoplexy.

Upon laying open her Cranium, the Vessels of the Meninges and Brain were distended, and turgid with Blood; whereas in dissecting the other Parts of her Body, scarce any Blood at all was discharg'd. Upon removing the Dura Mater, thro' the Pia Mater, which is slender and pellucid, was discover'd a limpid Water, filling the Corrugations and Sinuses of the Brain, and, as it were, overflowing its whole Substance. The Plexus Choroides had been so long immers'd in this Water, that it appear'd discolour'd, half corrupted, and, as it were, boil'd. *Willis Pathol. Cerebri, Cap. 10.*

OBSERVATION III.

A certain Man, after complaining for two Years of a Pain in his Head, at last fell a Victim to his Disorder.

Upon opening his Cranium, the Dura Mater was found cut out into Holes in several Places, especially in the Bregma, under the Sagittal Suture, where it is join'd with the Coronal. Thro' these Holes there flow'd a black, and almost concreted Blood, with which also the Vessels distributed on the external Surface of the Dura Mater, and those running thro' the Pia Mater, were distended. The Substance of the Cerebellum was become entirely flaccid, and much softer than the Brain itself. *P. Pavvius, Observat. Anat. 8.*

OBSERVATION IV.

A certain Lady apply'd to the Physicians for the Cure of a Fluor Albus. A few Days after this Application she was seiz'd with a violent Pain of the Side, accompany'd with a Fever. The Physicians agreed, that she labour'd under a Pleurisy and Peripneumony, and accordingly prescrib'd for her. The celebrated *Duræus*, who was one of those who attended her, predicted that if a Pain and Itching of the Head succeeded, the Death of the Patient would be unavoidable, because, in that Case, the Matter producing the Peripneumony would be transfer'd to the Head. Next Day the Symptoms he mention'd appear'd, and the Patient dy'd a few Hours after.

Her Body was open'd, in order to discover whether this Prediction was just, and whether there had been a Translocation of the Humour from the Pleura to the Head. Accordingly, upon laying open her Cranium, we found all the Parts within the Pia Mater and Brain stuffed with Pus. *Ambroise Paré, Lib. 24. Cap. 68.*

OBSERVATION

OBSERVATION V.

A certain Man, afflicted with a long-continu'd Head-ach and Watchings, was at last seiz'd with a slight Delirium, and dy'd of a Convulsion.

Upon opening his Cranium there was an Abscess found, full of a fetid and corrupt Pus. *Sebastianus Nassus. Meth. Med. Part. 2. Quæst. 16.*

OBSERVATION VI.

Willis, in his *Anatomy of the Brain*, Cap. 9. informs us, that he had frequent Opportunities of opening the Heads of those who, during their Lives, had been much subject to Head-achs. In these Subjects, hard by the longitudinal Sinus, where the Seat of the Pain was, the Pia Mater was found growing to the Dura Mater for a considerable Space, often for two Fingers Breadth. By this Coalition a rough and unequal Tumor is rais'd, in which the Mouths of the Vessels are entirely obstructed, so that the Blood, tho' in a violent Effervescence, can have no Access to the adjacent Sinus.

OBSERVATION VII.

A certain Monk had labour'd under a Head-ach for ten Years, and every Year us'd above three Pounds of *Philonium* for alleviating the Pain: But his Disorder arose from Venereal Abscesses, Tophi, and a Caries of the Bone; for, upon applying the Trepan, his Head was found full of Phlegm, and the Cranium corrupted, soon after which he dy'd.

An Instance somewhat analogous to this we find in the *Prælectiones Præcticae* of *Hercules Saxonia*.

A certain Woman, afflicted with a scald Head, was at last, by the Use of certain Lotions, freed from her Disorder; upon which she was seiz'd with a Head-ach, and a continu'd Fever. I, being call'd to her, told her, that I was not in the least surpris'd at her Fate. But as her Symptoms neither yielded to the Methods of Derivation, Revulsion, nor Evacuation, she dy'd thirty Days after.

Upon opening the Cranium, the entire Half of the Brain, on the Right Side, was found entirely putrid, and stuffed with a yellowish Ichor, which resembled Urine.

OBSERVATION VIII.

A certain Person, by the Blow of a Horse's Foot, receiv'd a Wound in the Head, which scarce reach'd the Cranium: Immediately after, he complain'd of an intense Pain of his Head and Neck. Upon opening the Cranium, we found Half of the Brain putrid. In the lateral and middle Ventricles we found a large Quantity both of Pus and Water, ting'd of a reddish Colour. The Dura Mater was, however, entire, and apparently unaffected.

OBSERVATION IX.

A certain rakish Fellow, after labouring for a great while under the Lues Venerea, and its several concomitant Symptoms, was at last afflicted with a most cruel and racking Head-ach, which, notwithstanding all the Methods used for his Recovery, afflicted him so violently, both in the Night and Day-time, but especially during the former, that he made several Attempts to lay violent Hands on himself. His vital and animal Powers at last failing, in consequence of the intense Pain, he dy'd.

Upon laying open his Cranium, and freeing it from the Dura and Pia Mater, nothing of the Brain was found in the whole Cavity of the Cranium, but only a certain mucous Substance, and an indigested Phlegm, which scarce fill'd a fourth Part of the Cavity of the Cranium.

OBSERVATION X.

A certain Woman was, for twenty-five Years, rack'd with an intolerable Head-ach, which, when she began to chew her Aliments, or expos'd herself to an inclement Air, was so increas'd, especially in the Right Side, that Torrents of Tears burst from her Eyes, and, by her Cries, she disturb'd not only the Family in which she liv'd, but also the Neighbourhood. In vain did she implore the Assistance of several Physicians, for the Removal of her Disorder. Death, however, at last put an End to her Misery.

Upon opening her Cranium we found, first, under the Pia Mater, a large Quantity of limpid Water; secondly, the Ventricles of the Brain fill'd with a similar Liquor; thirdly, in the pineal Glands several small and rough Concretions of Sand, some of which, in consequence of their Bulk, deserved the Name of Stones; fourthly, the carotid Arteries so indurated, that externally they seem'd to have acquir'd a stony Texture; but upon opening them we found, that a callous stony Substance adher'd to their Sides. Thro' the Middle of these Arteries there was still left a kind of Passage for the Blood. *Regner de Graaf, in Miscel. Curios. Ann. 1670.*

OBSERVATION XI.

A certain young Man was afflicted with a long-continu'd

VOL. II.

Head-ach, of so obstinate a Kind, that it would not yield to the Force of any Remedies. After his Death scarce were the smallest Traces of Sutures to be observ'd in his Cranium, the Bones of which appear'd, as it were, to be one continu'd Substance. This Circumstance was universally concluded to be the Cause of his Disorder, since, in consequence of the Obliteration of the Sutures, there was no Passage left for these thick Steams and Vapours which prov'd the Cause of his Pain. *Columb. Anat. Lib. 1. Cap. 5.*

OBSERVATION XII.

A certain Lady of Distinction, who had long labour'd under a pungent Head-ach, which resembled the Pricking of Needles or Darts in the Part affected, and which was sometimes more, and sometimes less violent, at last fell a Sacrifice to her Disorder.

Upon opening her Cranium there was found, under the Dura Mater, near the torcular Herophili, a certain indurated stony Matter, resembling a small rocky Protuberance, unequal, rough, with many Points, variegated, as it were, with Appearances like Cats Claws, the Images of Shell-fishes, and several other Figures, and adhering strongly to the Dura Mater. Between the Inequalities of this Protuberance small Veins were distributed, which moisten'd this Substance. Above the Pia Mater there was a certain mucous Humour found. *Cattierus, Observ. Medic. 15.*

The *Cephalæa* frequently proceeds from Refrigeration, or Cold, or, on the contrary, from the Heat of the Sun's Rays, or from long want of Sleep; and Women are more subject to this Disorder than Men, because they are so much employ'd about the Care of their Hair. The Patient labouring under this Disease is affected with a violent Pain of the whole Head, or of one Half thereof, which is usually call'd *Hemicrania*, or only of the Temples, which kind of Pain they call *Crotaphos* (from *κρόταφον*, a Temple). The Pain extends itself also to the Roots of the Eyes, the hinder Part of the Head, and the Neck, as far as the Spine of the Back, in such a manner, that, when the Patient attempts to sit down, he is seiz'd with a Vertigo and Dimness of Sight, a Sicknefs at the Stomach, and Vomiting of Bile. Under an Exacerbation of this Disorder the Eyes become red and prominent, and the Eyelids closed to avoid the Light; Tears flow, there is a Loathing of all Food, a Dulness of Sight, a Ringing in the Ears, and a Thicknefs of Hearing, long and frequent Watchings, Tooth-ach, and, at the Beginning of the Paroxysm, a Distillation of a few Drops of Blood from the Nose, not at all relieving the Patient.

In this Case, if the Pain affect the whole Head, the Patient is to lie on his Back; if only Half of the Head be affected, he must lie on that Side; for the Pain is, in some measure, mitigated by the kindly Warmth, and gentle Compression, of the Bed. If the Disease increases, there follows an Alteration of the Countenance for the worse, a Lowness of the Pulse, and a Dulness of all the Senses.

In some Subjects this Disease is acute, and attends a Fever; in which Circumstance the Heads of our Sects have bestow'd a proper Name upon the Pain, and call'd it *Cephalalgia*. In others it comes within the List of chronic Disempers, is without a Fever, and returns at certain Periods of Time upon the Patients, who are only afflicted with a Pain of the Head, which Disorder the Antients call'd *Cephalæa*.

Some place the Seat of this Disease in the Membrane of the Brain, others in the Pericranium; some make the Skin of the Head, others the Muscles of the Temples and Cheeks, call'd *Diagonæ*, to be the Parts affected: But we place the Disorder sometimes in only some of these Parts, according to the Extent of the Pain; sometimes in all of them, in proportion to the Influence of the Causes which bring on the regular Return of the Disease. Again, as the Remissions or Mitigations are more or less perfect, so are the Intervals longer or shorter, and the Reliques of the Dislemper more or less, against the Return of the Fit. Regard is also to be had to the Paroxysm in the Time of the Fit; also to the Variety of Exacerbations, which are sometimes continu'd, sometimes return at Intervals of one or two Days, or those which we call typical, periodical, and hemitritical Periods, according to their respective Times. *Caelius Aurelianus, Morb. Chronic. Lib. 1. Cap. 1.*

The Head-ach is a very painful Sensation in the nervous Membranes of the Head, proceeding from various Causes, and frequently attended with a Variety of troublesome Symptoms, according to its different Degree and Situation.

This Pain affects different Parts of the Head, for which no other Reason can be assign'd, than that the Cranium, both internally and externally, is furnish'd with distinct nervous Membranes. On the external Surface of the Cranium occurs that fine, but sufficiently strong, and exquisitely sensible, Membrane which immediately surrounds it, and which, in its anterior, intermediate, and posterior Parts, receives many small Arteries from the external Carotid, and small Ramifications of Nerves from the Vertebrae of the Neck, and the Seventh Pair of the Brain. But the Pericranium coheres with the Muscles contiguous to the Cranium, and, by means of the Sutures, with the

the exterior Lamina of the Dura Mater. In this Membrane, that is, the Pericranium, we place the most common and frequent Seat of an Head-ach, which is, among other Circumstances, demonstrated to be true, by the external Application of Medicines calculated to alleviate Pain; as also by Scarifications, Setons, Cauteries, and Vesicatories. Nor must we here exclude the common Integuments or Skin, especially its internal Part, which is contiguous to the Pericranium, from which it may be separated, and thro' which are distributed several Blood-vessels. This is the principal Seat of that Species of Pain which is dull, heavy, and accompany'd with a Sensation of Pressure; whereas that which is more acute has its Seat in the Pericranium.

Nor is the interior Membrane, which surrounds the Brain, and is call'd the Dura Mater, exempted from Pain. This Membrane is form'd of highly tendinous and nervous Fibres, consists of two Laminæ, receives Ramifications from the Fifth and Seventh Pairs of Nerves, and is furnish'd with three small Arteries, the first of which arises from the internal Carotid, and is distributed to the anterior Part of the Dura Mater; the second arises from the external Carotid, enters the Cranium by a Perforation proper to itself, and goes to the middle Part of the Dura Mater; and the third arises from the external Branch of the internal Vertebral Artery, enters the Cranium by the Perforation for the internal Jugular Vein, and is distributed to the posterior Part of the Dura Mater. Here the Seat of the Pain is less frequent, but much more dangerous; for if the Blood should stagnate long in the Vessels of this Membrane, or, by its Quantity or Acrimony, prejudice their moving Force, it generally brings on some violent Disorder of the Head, such as a Phrenitis and Convulsions in acute Diseases, especially if the Pain is attended with Pulsation; and, in chronical Disorders, it lays a Foundation for Palsies, Hemiplegies, and lethargic Indispositions.

The other slender Membranes which immediately surround the Brain, such as the Pia Mater, and the Arachnoids, which rather appears to be the external Membrane of the Pia Mater, forming a cellular Interslice, thro' which the Vessels penetrate, do not, in my Opinion, seem to be the Seat of any Pain or uneasy Sensation, because they are destitute of tense, nervous, and elastic Fibres, and have no conspicuous Ramifications of Nerves in them. Lastly, that fine and exquisitely sensible Membrane, which arises from the Tunica Pituitaria, and covers the Sinus of the Os Frontis, is frequently the Seat of the most acute and intense Pain.

Pains of the Head are widely different from each other, according to the Parts in which they are seated, as also according to their Degrees and Durations; for this Reason Authors have assign'd different Names to different Species of Head-achs. If the Pain is slight, and affects only a Part of the Head, it is call'd *Cephalalgia*; but if it is more intense and durable, and affects the whole Head, it is call'd *Cephalæa*, which *Galen* beautifully describes in the following Words: "A Cephalæa," says he, "is a lasting Pain of the whole Head, which is with Difficulty remov'd, and which, by the slightest Accidents, is so increas'd, that the Patient can neither endure any Noise, any loud Voice, the Splendor of the Light, or any Motion, but seeks Retirement from Noise, and a dark Chamber, on account of the intense Pain: For some imagine, that they are beaten with a Mallet, others that their Heads are contus'd and distended, and in some few the Pain reaches to the Roots of the Eyes; so that, in this Species of Pain, we have no Reason to doubt but the whole Membrane of the Head is severely affected."

It often happens, that the Pain affects only one Side of the Head, whilst the other remains sound and unaffected, which Species of the Disorder is by the *Greeks* call'd *Hemicrania*. Sometimes it also happens, that the Pain is fix'd in the Crown of the Head, and confin'd within a certain Space, scarce exceeding the Largeness of a Gooseberry, or an Imperial, which is a Coin much about the Bulk of our Half-guinea. This Species of the Disorder is peculiarly incident to Women, especially such as are hysteric, and is distinguish'd by the Name of *Clavus*. Sometimes a highly acute Pain seizes the Forehead, and Parts about the Eyebrows. Sometimes it is lodg'd only in the Sinciput, and at other times in the Occiput. Sometimes it affects the Crown of the Head near the vertical Suture, and at other times it rather affects the Temples. Nor is the Pain, or uneasy Sensation, always one and the same; for one Species of it is acute, another pungent, and another lancinating: One resembles that of a Contusion, another is accompany'd with a Sense of Weight and Pressure. Some Pains are of the constrictory, and others of the violently hot and inflammatory Kind; whereas others are accompany'd with a Sensation of Cold, such as that which principally seizes Women in the Crown of the Head, and occasions their complaining of a Piece of cold Ice, as it were, being apply'd to it.

In general, the Cause of every Pain of the Head is to be deduced from an Interruption of the free and equable progressive and circular Motion of the Blood thro' the Blood-vessels,

distributed thro' the Integuments of the Head, the Pericranium, and Dura Mater. No Physician has more exactly, or in a more mechanical manner, describ'd the Cause and Origin of Pains of the Head, than *Hippocrates*, who, in the thirteenth Section of his Book *de Flatibus*, beautifully delivers his Sentiments in the following Words. "As the Motion of the Blood," says he, in the Head, is perform'd thro' very narrow Passages, the Redundance and Confinement of this Fluid excite Pain; for as the Blood is naturally hot, when it is impel'd by any Force, it cannot quickly pass thro' this narrow Chanel, since it meets with many Hindrances and Obstructions, for which Reason there is a Pulsation about the Temples." This Passage seems to insinuate, that *Hippocrates* was not an entire Stranger to the progressive Motion of the Blood from the Arteries to the Veins; for he calls the Obstacles, which hinder the free Conveyance of the Blood, *Obstructions*, which are produc'd by a want of a due Impulse in the Vasa reventia, by which means the Motion of the Blood becomes slower and more languid. This seems also to be confirm'd by the Dissections of those who have died of violent and severe Cephalæas; for, according to *Bonetus*, *Wepfer*, *Pechlinus*, and others, in Subjects of this Kind, the Sinuses of the Brain, as also the internal and external jugular Veins, have been found stuffed with a thick and mucous Blood, and sometimes with spurious polypous Concretions, which I myself, says *Hoffman*, have also often observ'd in those who died of the Epilepsy; for if a larger Quantity of Blood is convey'd to the Head, than the Veins are able to carry back with the same Degree of Celerity, the arterial Vessels, especially those of the capillary and smaller Kind, are violently distended by the Congestion of the Blood, and the Membranes of the Brain are render'd remarkably tense, by which means the Pain, and uneasy Sensation, are excited.

It is also to be observ'd, that various Species of Pains are produc'd, according to the different States and Conditions of the Blood, whether the Fault consists in its Redundance, its thick and glutinous Quality, or in its being impregnated with an highly acrid Serum; for when it rushes too impetuously, and in too large a Quantity upon the Membranes, which principally happens in plethoric Patients, young Persons, and in Cases, where accusom'd Discharges of Blood from the Nose are suppress'd, a Pain generally seizes the whole Head, which then becomes hot, red, and tumid. The Vessels swell, and their Pulsation becomes strong, especially about the Neck and Temples; the Nostrils become parch'd and dry, a violent Heat seizes the Fauces, and the Patient is tormented with Thirst. The Antients said, that this Species of Disorder was produc'd by a hot Cause.

When the Blood, collected in the Vessels of the Head, abounds with a large Quantity of effete Serum, either from an Obstruction or Suppression of a Coryza, or Running at the Nose, a Pain arises, especially in the Forehead, of the heavy and dull Kind, attended with a Sensation of Pressure; and sometimes the Patient's Head becomes, as it were, so weighty and heavy, that he can scarce lift it up. It frequently happens, that in the Integuments of the Head, especially on the Crown, there arise Tumors, in which the Finger leaves an Impression, whilst the Patient's Pulse, in the mean time, is languid, and his Complexion livid. This Species of Disorder was long ago observ'd by *Celsus*, in the second Chapter of his fourth Book, where the following Words occur: "Besides these, there is another Species of Pain which may last for a great while, in which the Humours inflate the Skin, which becomes tumid, and yields to the Pressure of the Finger." The Antients affirmed, that this Species of Pain was produced by a cold Cause.

A worse, and more obstinate Species of Pain, is that which seizes those deeply affected with a Lues Venerea, when a serous, acrid, and caustic Matter is firmly rooted in the Pericranium, and, sometimes rendering the Cranium itself carious, with Difficulty admits of a Cure, and scarcely yields to the Force of Medicines. That Species of Pain is generally of the same Kind which arises from a saline-caustic Matter driven to the Habit, and afterwards endeavouring to return to the Surface of the Body, as in the Course of my Practice I have often observed in arthritic Pains, Gouts, Itches, Erysipelas of the Head, and Gutta Rosacea. In the Small-pox and Measles, before the peccant Matter is, by the Force of Nature, driven into the Surface of the Body, or, which is still worse, when this Matter is repelled, there often arises, in Children, a violent Pain of the Head, accompanied with a Fever, a Delirium, and an Epilepsy; in which Case, when a small Quantity of caustic Matter creates the Pain, the Symptoms are rather to be accounted for from a preternatural Stricture of the Membranes, than from their Distention, which is rather produced by a Redundance of Serum and Blood.

There often arises in the Head a Pain so fixed, so lasting, so intolerable, so acute and intense, as to disturb the animal and rational Powers, to deprive the Patient of Sleep, to hinder Digestion, to create a Nausea and Loathing of Food, and often

to bring on the most violent Disorders of the Head and Nerves, such as a Vertigo, Dimness of Sight, Cataracts, Blindness, Ringing of the Ears, Convulsions, and Epilepsies. This violent and intense Pain, by drawing the other nervous Parts of the Body into Consent, excites also Vomiting, Costiveness, and a Coldness of the Extremities. It also makes the Patient's Countenance resemble that of a dying Person. These Circumstances we find more adverted to by the Antients; for *Celsus*, in the second Chapter of his fourth Book, uses the following Words: "The Marks of a Cephalæa are a strong Horror, a paralytic State of the Nerves, Dimness of Sight, Alienation of Mind, Vomiting, Loss of Speech, Coldness of the Body, and Deliquiums."

As for the Cause and Origin of a Head-ach, we must not forget, that this may be a natural Imbecillity of the nervous Parts of the Head, convey'd from Parents to their Children; for the weaker any Part is, or the more it is depriv'd of its due Tone and Elasticity, the more easily and readily it receives and retains any foreign Humour; and hence arises a Stagnation of the Fluids, and a Disorder of the nervous Parts. I have often known a hereditary Head-ach convey'd to Children by Parents of weak Heads. I have also seen Instances, in which long Grievs, unseasonable Venery, intense Lucubrations and Application of Mind, too frequent Venesection, and immoderate Hæmorrhages, have so weaken'd the Head, that, not only violent Pains, but also other terrible Disorders of the Head have ensued.

Nor ought we to exclude, from the Number of the remote Causes productive of this Pain, Cold, which, as it is prejudicial to all the nervous Parts when afflicted with Pain, and hinders a free Transpiration thro' the cutaneous Pores, so it proves in a particular manner hurtful, when admitted to the bare Head, or when the Head is not sufficiently guarded against the nocturnal Cold; or when the Head, becoming warm by long Speaking, violent Exercise, the Influence of the Sun, Passion, or large Quantities of spirituous and intoxicating Liquors, is suddenly expos'd to the Cold in rainy Weather, and more especially in the Night-time.

We must also advert to this, that a Cephalalgia is often no more than the concomitant Symptom of a Disease. Thus it frequently accompanies continued and intermittent Fevers, and more especially those of the quartan Kind. No Case occurs more frequently in Practice, than a violent Pain in the Head, when the Menfes are either just about to make an Eruption, or are discharg'd immoderately; for in this Case, the spasmodic Strictures of the lower Belly exert their Influences on the Head. Those who have the Misfortune of a bad Digestion, or labour under what we call the hypochondriac Passion, are frequently afflicted with Head-achs: for when the *Primæ Viæ* are encumber'd with a Load of peccant Humours, and when the Spasms and Flatulencies arising thence, convey too large a Quantity of Humours to the Head, the preternatural Congestion of these Humours produces Distentions of the Vessels, by which the nervous Coats are hurt, and Pain created. It is also certain, that a Hemisrania is frequently produc'd by a Fault of the Stomach, whilst, in consequence of a bad Digestion, many Crudities are generated, which, mixing with the Chyle, are convey'd thro' the thoracic Duct to the Heart, and being thence convey'd to the Head, before their Evacuation thro' proper Emunctories, they excite periodical Pains, which generally seize the Patient when the Digestion is finish'd: Or undigested Humours, contain'd in the Stomach, may immediately affect the Nerves thereof, and cause a Head-ach.

We also observe, that Children are pretty subject to Head-achs, not only because at this Age a less exact Regimen is observ'd, and the Stomach is generally loaded with Sweat-meats, unripe Fruits, Cheese-cakes, and Aliments prepar'd of Milk; but also because Worms, to the Generation of which Children are much dispos'd, lay a Foundation for this Disorder, whilst the putrid and corrupt Humours, convey'd to the Head along with the Chyle, deprive the moving and elastic Membranes of their natural Tone and Strength. It must also be observ'd, that this Pain does not continually, and without Interruption, afflict the Patient, but has sometimes its lucid Intervals, in which, to the great Comfort of the Patient, it remits, or entirely ceases, but returns again at certain stated Hours, Days, Months, and even Years. This is a certain Indication, that the Cause of the Disorder is lodg'd in the more remote Parts, especially in the Stomach and Viscera of the Abdomen; by any Fault of which, when the free Circulation of the Blood thro' the whole Body, but more especially thro' the Head, is obstructed, a Head-ach is excited. This Phenomenon I have principally observ'd, in Men who either are, or have formerly been, subject to hæmorrhoidal Discharges, or who are dispos'd to hypochondriacal Disorders.

A Cephalalgia is not always free from Danger; for if the Cause of the Pain is situated within the Cranium, and lodg'd in the Membranes of the Brain, and if the Pain is intense, continued, accompanied with a Fever, and destructive of the

Patient's Sleep, a Phrenitis frequently ensues. But if a Head-ach arises suddenly in hypochondriac Patients, and such as are dispos'd to Melancholy, especially after the Sallies of some violent Passion, deprives the Patient at once of his Sleep and his Appetite, and is accompany'd with a Dulness of Hearing, and an internal Pulsation of the Vessels without a Fever, Madness generally follows. When a sudden and highly acute Pain of the Head is follow'd by a ringing Noise of the Ears, a Difficulty of Walking, a Weakness of the Knees, a Slowness and Interruption of Speech, it is a Sign of an approaching Apoplexy or Hemiplegy, which, however, more severely afflicts the opposite Side, than that which is paralytic, since the latter is no longer susceptible of Pain. Nor are we to forget, that frequent Head-achs in young Persons prognosticate future arthritic Disorders, or Gouts.

CURATORY INDICATIONS.

As the Causes of this Disorder are various, they ought to be carefully distinguish'd and inquir'd into, because, in removing them, the whole Method of Cure in a great measure consists. But, in general, the Intentions of Cure in this Disorder are these following.

First, if the Blood and Humours are impetuously convey'd to the Head, and remain there, they are partly to be deriv'd to the more ignoble Parts, and partly to be discuss'd by proper Remedies.

Secondly, The spasmodic Strictures of the Membranes of the Head, generally produc'd by an acrid caustic Matter, are to be relaxed, that the Fluids, whose progressive Motion thro' the Membranes was by their means hindered, may now circulate with the greater Freedom.

Thirdly, The material Cause of the Disorder, which is peccant with respect to its Quality, is to be corrected, and gently evacuated thro' proper Emunctories. And,

Lastly, In order to prevent a Relapse, the whole Head and nervous System are to be corroborated by proper Remedies, and more especially by a well-chosen Diet and Regimen.

If the Cause of the Pain is too large a Quantity of Blood violently propelled to the Head by the Spasms of the lower Parts, no Remedy affords a more instantaneous Relief than Venesection, which ought to be instituted as near the Part affected as is possible, in order to make the more effectual Derivation, under the Tongue for Instance, in the Forehead, or in the external jugular Veins, or by the Application of Leaches behind the Ears; but with this Caution, that if the Body is plethoric, or too turgid with Blood, a Vein is to be previously opened at the Ancles, and the next, or the second Day after, a Vein is to be breath'd about the Head. I also think it advisable, before this Step is taken, to evacuate the Contents of the Intestines; which is commodiously, and to the great Relief of the Patient, effected by the common Family Clysters, or by Infusions of Manna and Rhubarb, with an Addition of some aperient Salt, such as Cream of Tartar, or the Sedlitz Salt.

In order to check the too violent Orgasm, and tumultuous Commotion of the redundant and effervescent Blood, it is proper to exhibit a gently diaphoretic and correcting Mixture, prepar'd of the Waters of Lime-flowers, Lilies of the Valley, Elder, black Cherries, with an Addition of a proper Quantity of diaphoretic Antimony, purify'd Nitre, calcin'd Hartshorn, Cinnabar, and Syrup of white Poppies. Externally a discutient and correcting Epithem is to be apply'd, with a double Linen Cloth, to the Forehead and Head. The Epithem, for this Intention, may be prepar'd in the following manner.

Take of the Vinegars of Roses and Rue, each an Ounce and a half; of the Spirit of Roses, two Drams, in which six Grains of Camphire have been dissolv'd; of purified Nitre, two Scruples; of the Oil of Rhodium, fifteen Drops.

Or the following Emulsion may be used with considerable Success.

Take of the Kernels of Peaches, and of bitter Almonds, each half an Ounce; of white Poppy-seeds, two Drams; of the Waters of Roses, Elder-flowers, and black Cherries, each two Ounces; Make into an Emulsion, to which add of Nitre half a Dram, of Camphire five Grains, dissolv'd in Oil of sweet Almonds. Mix all together.

But another, and quite different Method of Cure is necessary, if a Pain, which generally continues for a considerable time, and is accompanied with a Torpor and Sense of Weight, is produc'd by a Quantity of viscid and peccant Serum stagnating within or without the Vessels of the Membranes of the Brain, in which Case neither Venesections, nor the milder Laxatives, are sufficiently efficacious; so that it is proper to exhibit some more efficacious Medicines, which have at once a

Power

Power of dissolving the thick and glutinous Humours, and expelling the Contents of the Intestines. Both these Intentions are excellently answer'd by the following Pills.

Take of pure Gum Ammoniac, Sagapenum, the best Myrrh, rofated Aloes, Extract of black Hellebore, Resin of Jalap, Mercurius Dulcis, and prepar'd Cinnabar, each half a Dram; of the Extract of Saffron, of the Powder of Castor, and of the Salt of Amber, each fifteen Grains: Make up into a Mass; out of every Scruple of which make twelve Pills, six of which may be taken at Night, and the other six next Morning.

The Patient is at this time to abstain from all Aliments, except weak Broths. When three Days are expir'd, the same Remedy may be repeated. When the peccant Serum is, by means of these Pills, sufficiently evacuated, we are to have recourse to such Medicines as corroborate the Vessels, restore the Tone, and are, at the same time, diuretic. For answering these Intentions I have often, says *Hoffman*, used with singular Success the following Mixture.

Take of the acrid Tincture of Antimony, four Parts; of the Essence of Amber, of the Spiritus Bezoardicus Rustii, or of Spirit of Tartar, and my Anodyne Mineral Liquor, each two Parts: Mix all together.

A Dose of this Mixture may be exhibited twice or thrice a Day, for a Week or longer, as the State of the Patient shall require; for I have observ'd, that such Medicines as, by corroborating the languid Fibres, restore and rouse their moving and elastic Force, and at the same time promote a Discharge of Urine, are of singular Service in that Species of Cephalalgia, which arises from an Extravasation of Serum between the Cranium and its Integuments, or even in the Brain itself. Besides these Medicines, I, in this Species of Head-ach, with *Celsus*, recommend Labour and Exercise sufficient to promote a Diaphoresis, and strong Friction, together with such Aliments and Liquors as provoke Urine.

If by these means the Pain is not remov'd, we must have recourse to external Applications, among which, Vesicatories are of the highest and most considerable Service, because they procure an Elimination of the peccant stagnating Humour. For this Purpose I generally use Melilot Plaster, with every Ounce of which a Dram of Cantharides is mix'd, adding at the same time a few Grains of Camphire. The Breadth of a Dollar, or Crown-piece, of this Plaster, may be applied to the Nape of the Neck, and continued at Pleasure, taking care to renew it at proper Intervals: By this means, a remarkable Quantity of serous Humour is evacuated without incommoding the Patient. But in a violent Pain of the Head, and in Cases where, in consequence of the Serum stagnating under the Integuments of the Cranium, there is a Tumor, which is not only visible, but also painful upon being touch'd, *Wepfer*, after shaving the Head, apply'd a Vesicatory to the Whole of it; the Effect of which was, that, without raising Blisters, a large Quantity of viscid Serum was evacuated, which Kind of Remedy we find used with Success by *Riverius* in an obstinate Head-ach.

It sometimes happens, that only a particular Place is seized with an unusually intense Pain, arising from a peccant Matter securely and deeply rooted in the Membranes, in which Case *Chefneau*, a celebrated French Physician, in his Observations, highly extols the Use of the *Ranunculus pratensis*, as a Vesicatory. He informs us concerning this Plant, that its Leaves resemble those of the Anemone, and that, when chewed, it bites the Tongue very severely. He orders its Leaves, when bruised, to be apply'd to the Part affected, which is, at the same time, to be cover'd with a perforated Plaster. This Herb seems to produce nearly the same Effect with the Moxa, which, in this Species of Head-ach, is highly esteem'd by the most skilful Physicians. But in Cases of this Nature, I myself, says *Hoffman*, have with great Success, after having shaved the Part affected, apply'd to it the dry volatile Salt of Sal Ammoniac, mix'd with an equal Quantity of the Flower of Mustard, because the peccant Humour, in consequence of its being deeply seated, requires proportionably stronger Discutients.

But when the Head-ach arises from a preposterous Suppression of a Coryza, or a Mucus retained in the Cavities and Sinuses of the Nostrils, it is proper frequently to apply to the Nostrils the Sal Anglicanum, which is the dry volatile Salt of Sal Ammoniac, exalted with some cephalic Oil, such as that of Lavender or Marjoram; or to snuff up the Nostrils, as an Errhine, a gently sternutative Powder, prepar'd of Marjoram, Betony, the true Marum, Flowers of Benjamin, and Powder of Cloves.

But when a long-continued and intolerable Head-ach is produc'd by a corrupted and deprav'd State of the Serum and Blood, as happens in the Lues Venerea and Scurvy, it is necessary to attack the Cause of the Disorder, by Medicines

adapted to the respective Cures of these Diseases. This Intention is principally answered by Decoctions of the Woods, with crude Antimony, if the corrupted Humours are previously discharged by Stool, by means of the above specify'd Pills. Abstinence, also, for a Day or two, is of singular Service in this Case, as also Exercise sufficient to promote a Diaphoresis. It is also serviceable in this obstinate Disorder, which arises from an impure Serum, to provoke Sweat by some proper Medicine, which Intention is excellently answered by the following Powder.

Take of native Cinnabar, of Cerus of Antimony, or Bezoardicum Minerale, of the volatile Salt of Vipers, or of Hartshorn, and of pure Nitre, each ten Grains; and of Camphire, half a Grain, for a Dose; drinking after it a Draught of any Decoction, proper for purifying the Blood.

A Hemisrania, especially of the periodical Kind, has its Cause generally conceal'd in the Primæ Viæ; when, for Instance, the Stomach and Duodenum are stuffed with a Load of peccant Humours, these must be evacuated by mild and gentle Emetics. It is also sometimes highly necessary to render the Body soluble, and discharge the peccant Matter by Stool, that a Derivation of the noxious Humours may be made from the Head. After this, Stomachic Elixirs, and such Medicines as restore and strengthen the Tone of the Stomach and Intestines, are to be exhibited. But if the Head-ach arises from an immoderate Discharge of the Menses, or Hæmorrhoids, we are prudently to use such Medicines, as are adapted to reduce these salutary Evacuations to their due and natural State.

CAUTIONS and CLINICAL OBSERVATIONS.

Having thus given Directions for the Cure of a Cephalalgia, it is not unnecessary to subjoin some Cautions and Observations relating to the same Subject. When the Pain, especially in the Sinciput and Frontal Sinuses, is so highly acute and intense as considerably to impair the Strength, and endanger the Life, of the Patient, the Removal of the Cause of the Disease is by no means to be first attempted; but some Relief is rather previously to be afforded, because, when the Patient's Strength is gone, the Efforts of the Physician are of no Use. The Pain is sometimes so excessively intense, as to bring on more terrible Symptoms; such as continual Watchings, Faintings, Fevers, Inflammations, and Alienation of Mind. In this Case both internal and external Medicines are, with all Expedition, to be prescrib'd, for the Alleviation of the Pain. Among the internal Medicines, I generally prefer, to all others, the *Pilule Wildegansii*, mix'd with native Cinnabar; as also the *Pilule Starkei*: But the Body is always to be render'd soluble, by a Clyster, before the Use of Anodynes. Among external Applications, I find none more safe and efficacious than a thick Liniment, prepared of the following Ingredients in this manner:

Take of the express'd Oil of Nutmegs, half an Ounce; of the Resin of Storax, and of the Resin of the Bark of Cascarilla, each one Dram; of the Extract of Saffron, and Peruvian Balm, each half a Dram; and of the Oil of Rhodium, twelve Drops: Mix up into a thick Liniment, which is to be laid upon a small Piece of Leather, as large as an Imperial, which is about the Size of a Half-guinea, and applied to the Temples.

When the Violence of the Pain is abated by the internal Exhibition, and the external Application, of Anodynes, it is proper to give a gentle Cathartic; after which the Physician is to have recourse to other Medicines, adapted, by their Nature and Qualities, to remove the Cause of the Disorder, whatever it may happen to be. When a highly acute, and scarce tolerable Pain, remains fix'd for a long time in the Cavities of the Nostrils, and the bony Sinuses of the Head, which Species of Pain is produced by a small Quantity of extravasated Blood or Humours, lodged under the Membrane which covers these Sinuses, it is not only proper to alleviate the Violence of the Pain by the above-mention'd Medicines, but we must also endeavour to lessen the Impulse of the Blood, by the Violence of which the Pain is increased. This Intention may be commodiously answer'd by Scarification of the Nostrils, a Practice used by the Egyptian Physicians; or, if we intend a more speedy and compendious Method of Relief, we may thrust a strong Straw suddenly and forcibly up the Nostrils, till a Hæmorrhage ensues.

But if the corrosive and acrid Humour, extravasated under the Membrane of the Pericranium, begins to render the Bone carious, then, after all other Remedies are tried to no Purpose, we must have recourse to Incision; which, in this Case, as well as in a Paronychia, arising almost from a like Cause, affords a very singular and surprising Relief. But if the Caries has reach'd to the Diploe, and the internal Lamina of the Cranium, the only

only Relief is to be expected from the Operation of the Trepan.

We must observe, in general, that, in the Cure of all Head-achs, from whatever Cause they may proceed, we are to begin with the Injection of a Clyster, and Venesection, if a Plethora requires it; but the Body is always to be render'd soluble before this last Step is taken. After this, we are to have recourse to other proper Remedies, both of the internal and external Kind. When the Plethora is removed, it is often proper, for the sake of a more effectual Derivation of the peccant Matter from the Part affected, to open the Frontal Vein; in performing which Operation the celebrated *Hearnius*, in *Notis ad Aph.* 68. *Hippocratis*, *Secl.* 5. gives us a Caution worthy of our Attention, which is, before the Operation, to apply a Ligature about the Neck, that the Vein may become turgid; which is afterwards to be cut obliquely, taking care not to wound the Pericranium.

It is confirm'd, by the Testimonies of the most skilful Physicians, that Arteriotomy in the Temples has often afforded the most instantaneous and efficacious Relief, when all other Methods have been used in vain. Nor would I detract from the Excellence and Advantages of this Method, tho' I never prescrib'd it. I am, however, of Opinion, that, by opening the external Jugular Vein, the obstructed Circulation of the Blood in the Head is more effectually restored, and the stagnating extravasated Humours, on which the Pain depends, more commodiously removed and eliminated; since by this means the arterial Blood is, with a greater Degree of Celerity, convey'd into the evacuated Vein. When Physicians advise the opening of the Temporal Vein, this Operation is most safely and commodiously perform'd by the Ear, near the Articulation of the Jaw-bone.

In all Head-achs, where the Patient's Strength will not admit of Venesection, and where the Quantity of the Blood is too small, Foot-baths of the temperate Kind, which are always beneficial in this Disorder, may be used with Success, in order to derive the Blood and Humours to the inferior Parts. Pretty strong Frictions of the Feet and Legs, with Cloths, are not to be disapproved of: Neither, in this Case, do Substances which render the Parts red and inflamed, such as Shavings of Horseradish, mix'd with Salt, and applied to the Feet, want their proper Use.

Epithems actually cold are, in this Case, to be applied with the greatest Care and Circumspection; for I myself, says *Hoffman*, know Instances of Patients, who in Fevers, especially of the exanthematous Kind, Small-pox, Measles, and Purple Fever, when Nature happily endeavours to throw off the peccant Matter in the Form of Exhalations thro' the cutaneous Pores, have by the Application of cold Epithems, in order to remove Head-achs, had a perpetual Blindness brought on; as also Cataracts, and Inflammations of the Eyes. Nor, in removing this Pain, is it always proper to use a Variety of Topics; the Application of which is sometimes more dangerous, and requires more Skill and Judgment in the Physician, than the Use of internal Medicines. Nor, in this Case, are all Medicines equally proper for all Patients indiscriminately; since one is able to bear what may prove highly prejudicial to another.

Under the Paroxysm itself, I have found the Pain considerably alleviated by a few Drops of my anodyne Liquor, dropt upon Sugar, reduced to a Powder, and exhibited frequently. In the Intervals of the Paroxysms, in order to corroborate the Head, or to prevent the Return of the Disorder, I can, from Experience, recommend my *Balsamum Analepticum Vitale*, either applied to the Temples, and Crown of the Head, or moderately snuffed up the Nose; or a few Drops of it, dropt upon Sugar, may be taken in any proper Infusion by way of Tea.

When too great an Effervescence, or a preternaturally accelerated and tumultuous Motion of the Blood, is the Cause of the Head-ach, Purgatives and Evacuants are by no means to be used; but rather Medicines of a refrigerating and correcting Quality, with which Intention I generally recommend the drinking cold Water alone, and Preparations of Nitre. And, certainly, the Caution of *Hippocrates*, with respect to this Matter, is of the utmost Importance; for, in his Book *de Ratione Vitæ in Acutis*, he advises us, "to purge none of those who are afflicted with Head-achs, in consequence of too violent Exercise, Running, Travelling, Hunting, or any other severe Labour." *Hippocrates*, in this Passage, intends to inform us, that, when the Head-ach arises from a hot and fervid State of the Blood, Purgatives are by no means to be used.

It frequently happens, that a Cephalæa attends an hypochondriac Melancholy, in Conjunction with a depraved Digestion, Leanness of the Body, Depression of the Spirits, and a vitiated Colour of the Complexion; in which Case, Venesection, Baths of good Water, proper Exercise, a prudent Use of medicinal Waters, Broths, especially those prepared with the Juice of Succory, Goats Whey, chalybeated, or impregnated with the Juice of Succory, are, of all other Things, the most effectual.

VOL. II.

As in all other Disorders of the Head, so also in Head-achs, the following Regimen is recommended by *Hieronymus Mercurialis*, in *Consultat.* Tom. I. *Consult.* 107. the Whole of which, as an excellent Method of Prevention, we shall here translate: "The Inclemency of the Air, says he, to which the Patient has not been accustom'd, is to be avoided as much as possible; or guarded against by proper Garments, and warm Rooms. The Patient is to sleep moderately, and never till two Hours after Meals. He is to sleep always with his Head raised high. He is to exercise his Body and his Mind equally, and by turns, lest the one should outdo the other either in Labour or Rest. He is not to allow an Excess of Care, Thoughtfulness, or Study, to dull and flatten the natural Heat of his Constitution. He must keep his Body as soluble as possible, if it is not already so; for nothing has a more immediate Tendency to affect the Head, and lay a Foundation for vertiginous Disorders, than the Mæces long retain'd, and pent up in the Intestines. Debauches and Surfeits are highly prejudicial to him, which he must therefore avoid; and abstain from the daily Use of strong and generous Wines. He must also abstain from thick, pinguous, and flatulent Aliments, such as Pulses and Pot-herbs, Fish, and Dishes prepar'd with Spices, like those used by the Germans, lest his Disorder should be daily increased." *Hoffman Medicina Rationalis Symptomata.* Vol. 2.

As many Species of Head-achs are symptomatical, we must refer their Cure to those of the Distempers which they accompany. But it must be remark'd, in general, that Head-achs are greatly relieved by Pains in the Feet, arising spontaneously: This has given a Hint to Physicians to try the Effect of Pain in these Parts, procur'd artificially, by stimulating Applications; which has been found, by Experience, to answer very well the Intention. From a Parity of Reasoning, promoting a Discharge of Blood from the Hemorrhoidal Veins has been experienced, and found of great Service.

A particular Method of Cure, for that Species of Head-ach proceeding from a Collection of Matter contain'd in the *Antrum Maxillæ superioris*, is recommended, I think, by *Cowper*. It consists in drawing one of the *Dentes Molares*, the Bottom of whose Socket is only separated from this Cavity by a thin bony Lamina, which is readily perforated; and by this means a Drain is made for the Matter, which, when confin'd, causes the Head-ach.

This Species of Head-ach is frequently attended with a Tumor on one Side of the Face, upon the *Antrum*, which subsides after the Operation, of which I have seen Instances.

Relative to this, *Drake* gives the two following remarkable Cases.

A young Gentleman became my Patient, who had labour'd under an Apostematation in the *Antrum Maxillæ superioris*, between four and five Years: I had seen him about a Twelve-month since, when I told him where the Seat of his Disease was, and the way I would take to cure him, which he unfortunately neglected. And notwithstanding the Arguments used by an ingenious and learned Physician, as well as against his own Inclinations, he was at that time prevail'd with to defer drawing his Tooth, (which I propos'd to him) till Time, with the Increase of his Malady, and a late Instance of Success I had in the like Case, on a Person of the first Rank in Sense as well as Quality, had convinc'd him of the Necessity of doing it: By this time the Matter had of itself made way by the farthest Dens Molaris of the Left Side, insomuch that, before the Tooth was drawn, I pass'd a Probe by the Side of it into the *Antrum*. The Day after the Tooth or Stump (for the greatest Part of it was moulder'd away) was taken out, an ordinary Spontul, at least, of the worst colour'd and scented Pus flow'd at the Socket, on holding his Head back: I then syring'd it with a proper Injection, which was continued daily; and, in three Days, he told me, he had very little Use for his Handkerchief, which he used to change five or six times in a Day, for three or four Years before. On visiting him, the seventh Day, he told me, to his Admiration, he was not only freed of the Flux at his Nose, and violent Pains in his Head, particularly in his Eyes, but restor'd (as he express'd it) to a perfect Tranquillity of Health.

An elderly Gentleman, who, for a long time, labour'd under a Discharge of a great Quantity of fetid Matter from his Nose, after I had told him how he might be relieved, was by others laugh'd out of the Project, (as they call it) till, at length, the Thing itself convinced him of the Truth of what I told him. When he consult'd me again, which was several Months after I first saw him, he then sent for a Tooth-drawer to take out the Tooth I should direct: Tho' the Operator attempted it with proper Dexterity, not only the Tooth, which appear'd sound, (but was not so) on which he applied his Instrument, but the next Tooth also, with their Alveoli or Sockets, came away all together. This frighten'd the Tooth-drawer; but I shew'd him it was none of his Fault, but that the corrosive Matter, which had been so long suffer'd to lie on the Bone, had rotted it. In doing this, the Patient did not complain of Pain;

Pain, and was relieved of the Discharge at his Nose (the Matter finding a ready Passage at the Breach); but was afterwards pursued with extravagant Pains in his Face, and that Side of his Head; and, at length, after some Months, fell into convulsive Disorders, and died.

On opening his Head, I found the upper Part of the Antrum carious, and Part of that Bone moulder'd away; but the Caries did not stop there, a Sinus being made thro' the Tract of the Foramen Lacerum; the opposite Part of the Os Sphenoides was also perforated, and the Dura Mater laid bare, and not perforated; but, on the contrary, it was inflamed, and very much thicken'd, on that Side the Head. I found an Apostematation in the cortical Substance of the fore Part of the hinder Lobe of the Brain of the same Side, tho' cover'd with the Pia Mater, in which was about an Ounce of fetid Matter. *Drake's Anatomy, Vol. 2.*

CEPHALARTICA. Remedies which purge the Head. *Blancard.*

CEPHALE, κεφαλή. The Head. See **CAPUT.**

CEPHALICUS, κεφαλικός. Cephalic. Appertaining to the Head. Thus the Vein mark'd M. in *Tab. 6. Fig. 1.* is call'd the cephalic Vein, because Bleeding in that Vein was supposed to relieve the Head.

Thus, also, Remedies for Disorders of the Head are peculiarly styl'd *Cephalica*, Cephalics. Under this Denomination are comprehended all those Medicines which have a particular Relation to the Brain; so that cephalic Remedies, in general, are such as promote the Secretion and Distribution of the spirits. This Intention is answer'd by all such Substances as procure a free Circulation of the Humours thro' the Vessels of the Brain: Hence Cephalics are different, according to the Diversity of Causes which may happen to obstruct or hinder the Circulation of the Humours in the Brain. If the Cause is of the cold and mucous Kind, the Cephalics to be prescrib'd must be of a heating, stimulating, fragrant, and aromatic Quality. If, on the contrary, the Disorder arises from an Excess of Heat in the Body, the Cephalics to be exhibited must be of a cooling and refrigerating Nature. Thus Correctors, universal Evacuants, and other Medicines, deserve to be dignified with the Epithet *Cephalic*, when they have a Tendency to weaken or remove the Cause which produces any particular Disorder of the Head. Since, therefore, different Disorders of the Head draw their Origins from opposite Causes, those must certainly be in a palpable Error, who only give the Title of Cephalics to heating and volatile Substances, which have often been found to prove hurtful in Disorders of the Head. The various cephalic Remedies are, therefore, to be taken from the general Titles or Classes of Medicines opposite to the morbid Cause. Cephalic Medicines are either internal, when, for Instance, they are exhibited by the Mouth, in order to produce their Effects by the general Circulation of the Fluids; or by way of Clysters, which often produce the most happy Consequences, by making a Revulsion from the superior and more noble Parts; or they are such as are applied externally to the Head, to which Class belong Snuff, proper Liquors for washing the Head, medicated Caps, and other Remedies commonly call'd *Topics*; the Materials of which are also used against the Disorders of other Parts of the Body. With respect to cephalic *Topics* in general, we must observe, that the Head is less capable of bearing moist than dry Applications; because the former, by distending or relaxing the Vessels, produce Congestions of Humours, which prove hurtful and prejudicial to the Brain. Nor do moist Preparations, applied to the Head, ever answer any valuable Purpose, except in those Cases alone where the Disorder arises from an Excess of Heat and Dryness, or from an inflammatory Disposition in the Head; for, in this Case, agreeably to the antiphlogistic Method, moistening Fomentations and Epithems, applied to the Head, Neck, and Throat, generally produce happy Effects; since, by this means, the Water, insinuating itself into the Pores of these Parts, renders them more pervious, so that the Blood passes more freely thro' them, and consequently presses less forcibly on the Brain; and, because the external Carotid Artery is distributed to all the Parts of the Head, the Blood is directed to some other Quarter, in consequence of the Relaxation of these very Parts. Decoctions, then, of the Flowers of Marshmallows, Mullein, and other Emollients, or moderately warm Oxymel, or Water and Elder-vinegar, are proper, for Instance, in Deliriums, according to *Boerhaave, Aph. 702.* in Comas, *Aph. 706.* in obstinate Watchings, *Aph. 709.* in a Phrenitis, *Aph. 781.* in an inflammatory Quinsy, *Aph. 809.* and in a Hydrophobia, *Aph. 1143. N. 5.* In Wounds of the Head and Pericranium, we must not, according to *Hoffman, in his Annotat. ad Pater. 17.* use odorous or pinguious Substances and Ointments; because, by obstructing the Pores, they bring on violent Inflammations. But, in their room, we must substitute either dry Substances, such as the Powders of *Florentine Orris*, Mastic, or Amber, or Honey, with an Admixture of a small Quantity of *Peruvian Balsam*. In other Disorders of the Head, such as Pains arising from a cold Cause, medicated Bagns, stuffed with heating Ingredients,

such as Sage, Marjoram, Frankincense, and Salt, are generally used with Success. The Patient's Head is also to be washed with a Lixivium, in which Ingredients of a heating Quality have been boil'd, since these are highly proper for attenuating the obstructing Matter, and corroborating the Brain.

Sennertus, in his *Institutiones Medicinæ*, informs us, "That, tho' Liquors for washing the Head are by some absolutely condemn'd and rejected, yet they are not altogether useless, since they open the Pores of the Skin, that the Fumes pent up in the small obstructed Vessels may be exhal'd. But they must not be us'd when the Patient labours immediately under a Catarrh, or a Head-ach; for they are more properly, and with greater Success, apply'd in the Intervals of these Disorders. As for the Method of using them, the Head must be wash'd either in the Morning, or an Hour before Supper; and, when it is sufficiently wash'd, it must be dry'd with moderately warm Linen Cloths. Washing of the Feet is also proper, not only with a View to remove the sordid Matter collected about them, but also to derive the Humours from the Head." *Campegius*, in his *Campus Elysus Gallia*, gives us the following Cautions with respect to the Use of heating medicated Bagns: "Let them," says he, "be apply'd after a considerable, but gentle Evacuation, and at the Height, or in the Decline, but not in the Beginning or Increase of the Disease, nor before a gentle Evacuation is made, lest, by their hot and attracting Influences, they should draw the Humours to the Head, and, by that means, do more Harm than Good." *Cheyne*, in his Treatise *De Infirmitatibus Sanitate tuenda*, tells us, that the greatest Advantages accrue to the Eyes, Ears, and whole Head, from shaving it frequently, and bathing it daily in cold Water, mixed with a few Drops of Lavender or Hungary Water. The Benefit, says he, arising from this Method, abstracting from the Pleasure it affords, are only known and relish'd by such as have experienc'd them. To rub the Head, after it is shav'd, proves an instantaneous Cure for a Cephalalgia, a Stuffing of the Head, and a Weakness of the Eyes, arising from a weak and relax'd State of the nervous Fibres: And as, by every fresh Evacuation of the Humours, their Quantity is not only lessen'd, but also their recrementitious Parts deriv'd thither; so the more frequently the Head is shav'd, the larger Quantity of Humours is discharg'd, so that the frequent Shaving of the Head and Beard is like a perpetual Fontanel or Vesicatory. From frequently washing the Skin of the Head with Soap and Water, and then shaving it, arises another considerable Advantage, which is, cleansing the Mouths of the cutaneous Pores from the Scurf and Scales which block them up; by which means a free Discharge is procur'd to the perspirable Matter, which, when retain'd, proves highly prejudicial to the Head and Brain. Then, by plunging the Head in cold Water, and carefully washing it, the Scales of the Cuticula are closely brac'd up, and hinder'd from gaping in an unseemly manner, and so that too large a Quantity of the perspirable Matter should be discharg'd, and that they may the better resist the Influence of the external Cold, by which means Persons of an infirm State of Health suffer very considerably; for which Reason I would advise all valetudinary Persons to shave every Day, or every other Day, or, at least, as often as they conveniently can, and then to wash their Heads with cold Water. *Celsus*, in the fourth Chapter of his first Book, gives the following Directions with respect to the Management of the Head: "The Person," says he, "who has a weak Head, provided his Digestion is good, ought gently to rub it with his Hands in the Morning, never, if possible, to keep it cover'd, nor to shave it close to the Skin. It is also proper he should shun the Influences of the Moon, especially before her Conjunction with the Sun. He must also take care not to go abroad immediately after Meals. If he has Hair, he must daily comb it, and walk much, but neither in the House, nor in the Sun. He must also, in a particular Manner, shun the Heat of the Sun after Meals, or the Use of Wine. He must rather anoint than bathe; and when he does anoint, it must never be before a violent Fire, where there is an Eruption of Flame, but sometimes before a gentle Fire, where the Coals are live and clear. If he intends to use a Bagnio, he must first sweat a little, cover'd with Cloths, in the *Tepidarium*, where he must also be anointed; thence he must go into the Sweating-room. When he has sweated, he must not go into the Bathing-cistern, but pour large Quantities of Water, first moderately warm, and then cold, upon his Head and whole Body; but he must pour it longer upon his Head than upon the other Parts of his Body. Then he must rub his Head for some time, and, last of all, wipe himself, and anoint. Nothing is so beneficial to the Head as cold Water: He, therefore, who has an infirm Head, ought, during the Summer, daily to plunge it in a pretty large Vessel of Water; and tho' he should anoint without bathing, or cannot endure the Influence of the Cold over his whole Body, yet he ought always to pour cold Water upon his Head. When he has not an Inclination to have the Water touch any other Parts of his Body, he must bend his Head downwards,

“downwards, that it may not reach his Neck, and that the
 “Eyes and other Parts of the Face may partake of the common
 “Benefit; he is every now-and-then to apply it to these Parts
 “with his Hands as it runs down. He must necessarily use a
 “spare Diet, and such as is of easy Digestion; and, if his
 “Head is prejudic’d by fasting, he may also eat in the Middle
 “of the Day; but, if he sustains no Injury by fasting, it is
 “more advisable to eat only once a Day. For his ordinary
 “Drink, ’tis more proper he should use mild diluted Wine
 “than Water. It is also proper, that, when his Head begins
 “to ache violently, he should have a Place proper for Repose,
 “to betake himself to. Wine or Water, us’d continually by
 “themselves, are not proper for him, since they only prove
 “Medicinal when us’d alternately. He must neither write,
 “read, nor dispute, after Supper, at which time profound Me-
 “ditation is also hurtful: But, of all other Circumstances,
 “Vomiting is most prejudicial to one in this State.” From
 what has been said we see, that there are two principal Classes
 of Cephalics; and these are Medicines either of the refrigerating
 or cooling, or of the warming and heating Kind. For since,
 as *Riverius* justly observes, the Brain is sometimes attack’d with
 cold, and sometimes with hot Disorders, the Medicines calcu-
 lated for its Relief must also be of two Kinds, in order to re-
 move the several Indispositions to which it is subject. “Heating
 “Medicines,” says the now-quoted Author, “not only heat
 “and dry the Brain, but also incite and attenuate the Phlegm
 “contain’d in it; whereas those of a refrigerating Quality
 “partly correct the hot Intemperature of the Brain, and partly
 “inspillate the acrid saline Phlegm, and other serous Humours,
 “which produce violent Defluxions.” To these two Classes
 of refrigerant and heating Medicines we may refer what *Hoff-
 man*, in his *Annotat. ad Peter.* proposes in the following Words:
 “Two Kinds of Medicines are principally proper in Disorders
 “of the Head, which arise either from an irregular and deful-
 “tory Motion of the Spirits, or from Obstructions of the
 “Nerves and Vessels of the Brain. Of the former Kind are
 “Anodynes, which, by their grateful Exhalations, stop the
 “tumultuous and disorderly Motions of the Spirits; such as the
 “Flowers of the Cowslip, of the Lime, of Piony, of the
 “Egyptian Thorn, of Elder, of Roses, of Violets, of the
 “wild Poppy, and of Lilies of the Valley; as also odorous
 “and scented Substances, such as Musk, Castor, Amber, and
 “Saffron. To the latter Class belong such Substances as con-
 “tain a subtle oleous Salt, of which Kind are all oleous Sub-
 “stances, and volatile Spirits obtain’d from Animals; as also
 “Marjoram, Rue, Lavender, Valerian, white Aloes Wood,
 “garden and wild Rosemary, Cardamoms, Cubebs, Mother
 “of Thyme, Basil, Amber, Ambergrise, and *Peruvian* Balsam:
 “All which, boil’d with Water or Wine, or infus’d in any
 “proper Menstruum, prove excellent Medicines for Disorders
 “of the Head.” But such Substances as relax the too much
 constricted Vessels, (in consequence of which Constriction a
 brisker Motion of the Humours, and a greater Heat in the Body,
 are procur’d) retard the accelerated Motion of all the Humours.
 As to what we call cephalic Specifics, which, by a peculiar
 Virtue, act upon the Head, and remove its Disorders, without
 influencing any other Parts of the Body, and are consequently
 indiscriminately proper in all Indispositions of the Head, from
 whatever Cause they may arise, we must, in this Affair, be
 cautious in passing our Judgment, since some maintain, that
 there are really such Medicines, whilst others deny the Fact,
 and engage the opposite Party with Experience, the most con-
 clusive of all Arguments. *Wedelius*, in his *Centuriæ Exerci-
 tationum Medicarum*, Cent. 1. Dec. 7. informs us, that Hyssop
 was the cephalic Specific of *Hippocrates*, as appears from his
 Book *De Morbo Sacro*, compar’d with what he has said con-
 cerning Hyssop. But this Plant can only be proper in one
 Species of Epilepsy; when, for Instance, it is produc’d by a
 Redundance of Phlegm, concerning which Species *Hippocrates*
 treats in that Work. In this Case, indeed, heating and drying
 Medicines are proper: Hyssop then is a Plant of this Kind; and
Wedelius himself informs us, that it abounds with a volatile
 oleous Salt. *Hippocrates* also, in his Work *De Dieta*, Lib.
 2. informs us, that Hyssop is hot, and evacuates Phlegm.
Forellus, *Obs. Med.* Lib. 9. *Obs.* 52. acquaints us with a very
 singular, and, I believe, inexplicable, cephalic Virtue in Vervain,
 which he observ’d in a Patient, who, for several Nights, had
 been afflicted with a violent and universal Pain of his Head,
 every Hair of which dropt with Sweat; for after all other Me-
 dicines, generally thought most efficacious, had been us’d in
 vain, the Patient, whilst fast asleep, was miraculously cur’d, by
 hanging a Piece of green Vervain bruise’d about his Neck: But
 the Author informs us, that the Vervain must not be remov’d,
 till, becoming dry, it falls away of its own accord.

CEPHALINE, κεφαλίη. That Part of the Tongue which
 is next the Root, and nearest the Fauces. *Gorræus*.

CEPHALOIDES, κεφαλοειδής. Shap’d like a Head, or
 having a Head. It is apply’d to those Plants which are call’d
 capitated.

CEPHALONOSOS, κεφαλονόσος, from κεφαλή, the Head,
 and νόσος, a Disease. The Term is apply’d to a malignant
 epidemical Fever, frequent in *Hungary*, thence call’d *Febris
 Hungarica*.

CEPHALO-PHARYNGÆUS. A Muscle of the Pharynx.
 See PHARYNX.

CEPHALOPONIA, κεφαλοπονία, from κεφαλή, the Head,
 and πόνος, Pain. A Head-ach.

CEPHALOS, κεφαλή. A Fish, call’d also Mugil. A
 Mullet. See MUGIL.

CEPHALOTOS, κεφαλωτός. Capitated. See CAPI-
 TATÆ.

CEPHALOTROTOS, from κεφαλή, the Head, and
 τριῶσκα, to wound. Wounded in the Head.

CEPINI. Vinegar. *Rulandus*.

CEPULA, κέπουλα. Large Myrobalans. Nic. *Myrsina*,
Sect. 9. C. 83.

CERA, κέρη. Bees-wax.

The best Wax is yellowish, somewhat pinguious, well scented,
 and smelling something like Honey, pure, and produc’d in *Creta*
 or *Pontus*. The next in Value is what is white, and of a natu-
 rally fat Substance.

All Wax is heating, mollifying, and moderately incarning.
 It is mix’d in forbile Liquors, as a Remedy for a Dysentery;
 and ten Bits, of the Size of a Grain of Millet, swallow’d,
 prevent the Curdling of Milk in the Breasts of Nurses. *Diosco-
 rides*, Lib. 2. Cap. 105.

Certain Balsams appear, in a very small Quantity, upon the
 Surface of the Leaves of some Plants, where they are inspillated
 by the Heat of the Sun, as seems manifestly to appear in Rose-
 mary: There are also often found in other Plants certain very
 minute Globules, rising from the open seminal Tufts in the
 main Part of the Flower. These can scarce be collected by any
 human Means; but I have sometimes found, upon frequently
 cohobating Spirit of Wine upon Rosemary-leaves, an unexpected
 and ungrateful Taste or Smell of Wax, fouling the Spirit,
 which before was good; and upon viewing these Leaves with a
 Microscope, I thought I discover’d little waxy Risings of the
 Surface; and, upon handling them considerably, I evidently
 found Wax gradually sticking to my Fingers. Wax, therefore,
 appears to be a certain Species of Turpentine, which the sal-
 Juices of Plants, when heated by the Sun, sweat out upon the
 Surface, or produce within the Cavities of the flowery Tufts.
 This the Bees collect, roll up into little Balls, and carry between
 their hind Feet to their Hives, where it is wrought into the
 Cells of their Combs; and from hence, after the Honey is
 separated from the drossy Parts, it is procur’d for human Uses.
 It is generally yellow, and not ungrateful either in Taste or
 Smell. It becomes hard, and almost brittle, in the Cold, but
 grows soft, and dissolves, with Heat.

Process upon BEES-WAX.

Half fill a Glass Retort with fine Wax, cut into Pieces small
 enough to enter the wide Mouth thereof; then pour clean
 Sand upon it, so as to fill the Retort; which is now to be
 gently warm’d till the Wax melts, and sufficiently imbibes
 and mixes among the Sand: Set the Retort in a Sand-
 furnace, apply a Receiver, and distil with a gradual Fire.
 There usually first comes over a little tartish Water, of a
 disagreeable fetid Odour, along with a little Spirit. When,
 with the gentle Heat of 214 Degrees, nothing more ascends,
 change the Receiver, and raise the Fire, by which means
 there will gradually arise a thin Oil, of a whitish Colour,
 and concrete, like Butter, in the Receiver. When this
 ceases, apply a violent Fire of Suppression, upon which the
 whole Body of the Wax will soon come over into the Re-
 ceiver, and there appear in a solid Form, like Butter;
 having lost the hard brittle Nature of Wax, and melting
 oily. So much Sand should be here mix’d with the Wax
 as to prevent its explosive Swelling, as would otherwise
 happen in the Boiling.

REMARKS.

It is hence manifest, that the whole Body of Wax is vo-
 latile, with a certain Degree of Fire; in which respect,
 therefore, this Substance agrees with Camphire, though
 Camphire be much more volatile. Hence we see also, that
 Wax, which is wholly inflammable, may exist in a hard,
 and almost brittle Form, when dissolv’d in hot Water,
 then forc’d thro’ a Linen Strainer, and poured into shallow
 metalline Moulds, so as to form little Cakes, these being
 expos’d to the open Air and Sun, and frequently sprinkled
 with pure Water, the Wax is thus blanch’d or whiten’d;
 and tho’ it now also wholly consumes in Flame, yet it is
 almost as brittle as Glass, so as to seem a very different thing
 from Oil. Inflammable vegetable Oils, therefore, may exist
 under the various Forms of Oils, Balsam, Rosin, Pitch, dry
 Tears, Wax, and Butter. And hence we see the Fire can
 make true liquid Oils from Bodies which appear’d not to be
 Oils.

Oils before ; as we evidently see in the Distillation of Colophony and Wax : And this Conversion of Wax into Butter is durable ; for it does not return to hard Wax again in a very long time, but constantly remains a soft Butter, even in the greatest Cold. I have kept this Butter of Wax above twenty Years, in a Glass cylindrical Vessel, whose wide Mouth was only loosely covered with Paper ; yet, in all this time, it did not return into Wax ; whereas the most liquid Oil of Turpentine soon grows thick ; so that the different Effects of Fire upon the bare oily Parts of Plants are surprising : Consequently no certain Rules can hence be laid down for the Action of Fire upon Oils. Camphire, which is a pure inflammable Oil, becomes Camphire again, and not a liquid Oil, after being raised by the Fire. The Butter of Wax, thus prepar'd, affords an extremely soft anodyne Unguent, agreeable to the Nerves, highly emollient, and relaxing ; and, when rub'd upon the Parts, proves serviceable in Contractions of the Limbs, and successfully preserves the Skin from Roughness, Dryness, and Cracking, in the Cold, or the Winter : It also proves excellent in the sharp Pains of the Hæmorrhoids. *Boerhaave's Chymistry.*

The BUTTER of WAX turned into a liquid Oil, upon repeated Distillation by the Retort.

Melt the Butter of Wax, over a gentle Fire, to a liquid Oil ; then pour it thro' a Funnel, full well heated, into a Glass Retort, also well heated beforehand, so as to half-fill the Retort, with Care to prevent any of the Butter from sticking to the Neck thereof, because in that Case the gross Matter would fall into the Receiver, which should here be avoided. Set the Retort in a Sand-furnace ; lute on a clean Receiver, and distil cautiously, managing the Fire, so that one Drop may follow another, at the Distance of six Seconds ; when nothing more comes over with this Degree of Heat, raise the Fire, and distil as before, and continue in this manner increasing the Fire with the same Caution, so long as any Butter remains in the Retort ; and by this means all the Butter will come over, scarce leaving any Fæces behind ; and a thickish Oil, not much diminished in Quantity, be found instead of Butter in the Receiver. If this Oil of Wax be again distilled in like manner, it always becomes more liquid, soft, transparent, and thin, so as at length to resemble a subtile limpid Oil : And the oftener the Distillation is repeated, the more mild and gentle, yet the more penetrating, the Oil becomes.

R E M A R K S.

Hence it appears, that the Action of the Fire more and more attenuates certain oily Bodies of Plants ; yet without rendering them acrimonious, but, on the contrary, always milder, tho' at the same time more penetrating ; for this last Oil of Wax is an incomparable Remedy for the Diseases of the nervous Papillæ in the external Skin, and has scarce its Equal in curing fissur'd Lips in the Winter, fissur'd Nipples in the Women who give Suck, and in the cracking of the Skin of the Hands and Fingers, being sometimes gently anointed thereon. It is also serviceable in discussing cold Tumors arising on the Face or Fingers in the Winter ; and curing contracted Tendons, and the Rigidity of the Limbs thence arising, being used along with Baths, Fomentations, and Motion ; for it has a singular Virtue in thus restoring Flexibility to the Parts. Being frequently rubbed upon the Abdomen, it prevents Costiveness ; and is therefore excellent in effectually curing the Diseases of Children. *Boerhaave's Chymistry, Vol. 2.*

From this Account of Bees-wax it is evident, that it is not so improper an Ingredient in the *Lucatellus's* Balsam, as some believe.

CERATÆ, κεράτια. The Cornua of the Uterus. *Ruffus Ephesus, C. 31.*

CERAGO. The Aliment of Bees. *Castellus.*

CERAMICE, or **CERAMITIS**, κεραμική, or κεραμίτις, join'd with γῆ, Earth, signifies Potters Clay. *Hippocrates*, in his Book *De internis Affectionibus*, orders, in an Erysipelas of the Lungs, this Earth to be apply'd cold, by way of Cataplasim, to the Body. It is not very clear, whether he means the whole Body, or the Region of the Lungs only. He also takes notice of this Earth in his first Book *De Morbis* ; and in his third Book *De Morbis*, he mentions it as a refrigerating Topic for the Head-ach.

CERAMIUM, κεράμιον. A Greek Measure, the same which the *Latins* call'd *Amphora*. It contains about nine Gallons.

CERAMOS, κέραμος. A Tile.

CERANITES, κερανίτις. The Name of a Pastil or Troche, mention'd by *Galen*.

CERANTHEMUS, κεράνθημα, or κεράνθημον. Bee-glue, or Bee-bread. See **PROPOLIS**, and **AMBRA**.

CERARE. To incorporate, or mix. *Rulandus.*

CERAS, κέρας. A Horn. See **CORNU**.

CERASIATUM. The Name of a purging Medicine in *Libavius*, so call'd because the Juice of Cherries is one Ingredient therein.

CERASION, κέρασιον. A Cherry. See **CERASUS**.

CERASIOS. A Name given by *Mesue* to two Ointments, which he calls the greater and the less. *Castellus.*

CERASMA, κέρασμα, from κέρανον, to mix. A Mixture of cold and warm Water, when the warm is pour'd into the cold. *Castellus* from *Galen*.

CERASTES, κέραστis, κέραστις, from κέρας, a Horn, is a Serpent, a Cubit in Length, or two Cubits when longest, of a sandy Colour in the Body, and near the Tail void of Scales. At the Head it has two Eminences like Horns, and the Parts about the Belly are cover'd with Scales orderly disposed, which, as the Serpent creeps along, make a rustling Noise like Hissing ; this Animal never creeps directly, but obliquely.

The Bite of this Serpent causes a Tumor like the Head of a Nail, and an Efflux of Sanies of the Colour of Wine, or blackish, especially from the Margin, as it usually happens in Wounds from Blows or Sugillations.

The same Symptoms which are consequent from the Bite of the Viper affect those who are bit by this Serpent, but to a more vehement Degree, tho' the Patient generally survives to the ninth Day. The Remedies are the same, as those prescribed against the Bite of the Viper. *Aetius, Tetrab. 4. Serm. 1. C. 28.*

Lemery seems to have copy'd *Aetius* in his Account of this Serpent : And adds, that it is prepared for Medicinal Uses like the Viper ; that it contains a great deal of volatile Salt and Oil ; and that it is sudorific, resists Poisons, purifies the Blood, and is good in the Small-pox, Pague, Leprosy, and Itch.

CERASUS. The Cherry-tree ; so call'd from *Cerasus*, a City of *Pontus*, from whence they were imported to *Rome* by *Lucullus*, and thence propagated into *Britain*, as *Pliny* informs us.

The Characters are ;

The Leaves are considerably large, and shining ; the Calyx, or Flower-cup, is very hollow, consists of one Leaf, is crowned with a quinquefid Crown, expanded, when come to Maturity, retorted ; the Flower is like a Rose, pentapetalous, the Petals growing out of the Spaces between the Segments of the Calyx ; it is also furnished with no fewer than thirty Stamina. The Ovary, which has a long Tube in the very Bottom of the Calyx, becomes a pulposus, roundish, or Heart-shaped Fruit, surrounding a stony Shell of a round Figure, which incloses a Kernel of the same Shape ; the Fruit has a very long Pedicle. *Boerhaave Index alter, Vol. 2.*

Dioscorides represents Cherries in general, as keeping the Belly open when eaten fresh, but as binding when dry. The Gum of the Cherry-tree, he says, taken in Wine and Water, cures a chronical Cough, improves the Complexion, sharpens Vision, and excites an Appetite, *L. 1. C. 157.*

Boerhaave, in his Work before quoted, informs us, that the Industry of the Gardeners has multiply'd the Species of Cherries to above forty-four. But the Cherries principally taken notice of in Medicine are the following.

Cerasus rubra, Offic. *Cerasus*, Mont. Ind. 39. *Cerasus vulgaris*, Ger. 1319. THE COMMON ENGLISH CHERRY-TREE, Emac. 1502. *Cerasus Anglica*, Park. Theat. 1517. *Cerasus sativa*, Jons. Dendr. 92. *Cerasa sativa rotunda, rubra & acida, quæ nostris Cerasa sativa*, C. B. Pin. 449. Raii Hist. 2. 1537. *Cerasus sativa fructu rotundo rubro & acido*, Tourn. Inst. 625. Elem. Bot. 496. *Cerasus acida rubella*, J. B. 1. THE RED CHERRY-TREE. Dale.

This Tree grows hardly so high as the black Cherry-tree, spreading its Branches more abroad ; the Flowers and Leaves are much alike, but the Fruit is much larger, of a red Colour, and a sharper Taste.

These are reckon'd more cooling than the black, quenching Thirst, are grateful to the Stomach, and whet the Appetite ; they are seldom used in Physic. The Gum is accounted Lithontriptic, and good for the Stone and Gravel, &c. *Miller's Bot. Off.*

They are cooling, drying, and astringent, and corroborate the Heart and Stomach ; hence they are useful in allaying feverish Heats and Thirst ; the Kernels are good to break the Stone. Dale from *Schroder*.

These Cherries are esteem'd a very salutary and agreeable Fruit. The Juice of them, when perfectly rip'd, is saponaceous, and highly resolvent ; and if taken in large Quantities, and these frequently repeated, especially when bod'd or bak'd, it is capable of curing many obstinate chronical Distempers, and taking away the obstructing Matter by a salutary *Diarrhæa*.

Cerasus acida nigricantia, Ind. Med. 32. *Cerasus fructu acido serotino, succi sanguinei*, Tourn. Inst. 625. Rupp. Flor. Jen.

Jen. 167. *Cerasus fructu-acido succi sanguinei*, Elem. Bot. 497. *Cerasa acidissima sanguineo succo*, C. B. Pin. 450. *Cerasa acida nigricantia solidiora tardius maturascentia*, J. B. 1. 221. Raii Hist. 2. 1538. THE MORELLO-CHERRY.

The Fruit preserved, and the Rob of the inspissated Juice, are used, and agree in Virtues with the red Cherry. Dale.

Cerasus nigra, Offic. Ger. 1323. THE COMMON BLACK CHERRY-TREE, Emac. 1505. Park. Parad. 571. Mer. Pin. 25. Phyt. Brit. 25. *Cerasus major ac sylvestris, fructu subdulci, nigro colore inficiente*, C. B. Pin. 450. BLACK CHERRY-TREE. MAZZARDS, Raii Hist. 2. 1538. Dill. Cat. Giff. 45. Buxb. 62. Tourn. Inst. 620. Elem. Bot. 497. *Cerasus sylvestris fructu nigro*, J. B. 1. 220. Raii Synop. 3. 463. THE BLACK CHERRY-TREE.

This grows to be a pretty tall Tree, whose Branches are cover'd with roundish sharp-pointed Leaves, serrated about the Edges. The Blossoms or Flowers precede the Leaves, growing several together upon long Foot-stalks, of single white Leaves, cut into fine Parts, with several Stamina in the Middle set upon the Rudiments of the Fruit, which grows to be roundish, less than the red Cherry, having a hard Stone in the Middle, cover'd with a pleasant Pulp, yielding a purple Juice. This Tree grows wild in several Parts of England; and is likewise planted in Gardens for the Fruit. It flowers in April; the Fruit being ripe in July.

Black Cherries are accounted cordial and cephalic, and useful in all Diseases of the Head and Nerves, as Epilepsies, Convulsions, Palsies, and the like. They are commended by some for the Stone, Gravel, and Stoppage of Urine.

Officinal Preparations are only the distill'd Water, which is of more Use in the modern Practice than any other simple Water whatever. Miller's Bot. Off.

See AQUA.

The Stones of black Cherries with their Kernels bak'd, and powder'd, are said to be extremely diuretic.

It is also said, that the Kernels of these yield by Distillation an Oil equally poisonous with that of the Laurel. Hence the black Cherry-water has, contrary to all Experience so far as I can learn, got into some Disrepute.

Padus, Offic. *Padus Theophrasti*, Dill. Cat. Giff. 66. *Padus Germanica folio deciduo*, Rupp. Flor. Jen. 108. Buxb. 149. *Cerasus Avium*, Merc. Bot. 2. 18. Phyt. Brit. 25. *Cerasus Avium nigra & racemosa*, Ger. 1322. Emac. 1504. Mer. Pin. 24. Raii Hist. 2. 1549. Synop. 3. 463. *Cerasus racemosa sylvestris fructu non eduli*, C. B. P. 451. Tourn. Inst. 626. Elem. Bot. 497. Boerh. Ind. A. 2. 244. *Cerasus racemosa sylvestris*, Jons. Dendr. 93. *Cerasus avium racemosa*, Park. Theat. 1517. BIRDS CHERRY.

It grows in rocky and mountainous Places, and the Fruit is used to hang about the Necks of Children, as a Cure for the Epilepsy. Dale.

Mahaleb, Offic. *Machaleb Gesneri*, Ger. 1211. CORAL PRIVET, Emac. 1397. *Machaleb Germanicum*, THE ROCK WILD CHERRY OF AUSTRIA, Park. Theat. 1519. *Cerasus sylvestris*, Ind. Med. 32. *Cerasus sylvestris, Mahaleb*, Mont. Ind. 39. *Cerasus sylvestris amara Mahaleb putata*, J. B. 1. 227. Raii Hist. 2. 1549. Tourn. Inst. 627. Elem. Bot. 497. *Cerasus sylvestris amara, Arabum Mahaleb putata*, Chab. 16. *Ceraso affinis*, C. P. Pin. 451. Jons. Dendr. 93. ROCK CHERRY.

It grows in rocky Mountains, and the Kernels are used, which are of a heating and emollient Quality. Dale.

CERATIA, κερατία. The Carob-tree. See CAROBA.

CERATIO. The smearing any thing over with Wax, But in the chymical Language it implies the reducing any Substance to such a State, as to be susceptible of a Fusion like that of Wax, whether the Body to be thus alter'd is naturally too hard and coherent to admit of such a Fusion, or whether it is too volatile to bear it; or it is a Mollification of a hard and not fusible Substance, so as to make it capable of Liquefaction. In the Alchemical Sense it imports the fixing of Mercury with something which flows like Wax, and detains it.

CERATITES. The Fossil Unicorn. A Stone in the Shape of a Horn.

CERATITIS, κερατίτις. Marcellus Empiricus says this is the Sea-violet. But Pliny informs us it is a Name of the *Papaver Corniculatum*, L. 20. C. 19.

CERATIUM, κεράτιον. The Fruit of the Carob-tree. See CAROBA.

It also signifies a Carat, a sort of Weight. See CARATA.

CERATOGLOSSUS. The Name of a Muscle of the Tongue. It arises fleshy from three different Places. Its first Origin is broad and carnosous from the Cornu of the Os Hyoides; this is properly the *Ceratoglossus*. Its second Head comes from Part of the Basis of this Bone, and is named *Basiglossus*. The third Beginning is derived from the cartilaginous Appendage of the Hyoides, which some call *Chondroglossus*. These three unite, and their Fibres, running in the same Direction, are inserted broad and thin near the Root of the Tongue laterally.

VOL. II.

Its Use is to draw the Tongue obliquely to one Side; but if both act at once, the Tongue is pulled directly backwards into the Mouth. Douglas.

CERATOIDES, κερατοειδής. A Name for the Tunica Cornea of the Eye.

CERATOMALAGMA, κερατομάλαγμα. A Cerate. See CERATUM.

CERATONIA. The Carob-tree. See CAROBA.

CERATOPHYLLON. An aquatic Plant, of which two Sorts are taken notice of.

1. *Ceratophyllum læve, aquis immersum Hydroceratophyllum, folio lævi, octo cornibus armato*, Aët. Ac. R. Sc. Par. 1719. Pag. 20. Vaill. 32.

Observed by Dr. Manningham and Dr. Dillenius in the Ditches, by the Way-side, from Chichester to Selsey. Syn. Stirp. Brit. Ed. 3. 135.

2. *Ceratophyllum asperum, aquis immersum. Hydroceratophyllum, folio aspero, quatuor cornibus armato*, Aët. Ac. Sc. Par. Ann. 1719. Pag. 20. *Millesolium aquaticum cornutum* 2. Raii Hist. 191. *Equisetum sub aqua repens foliis bifurcis*, Flor. Pruss. 67. Common in standing Waters. Martyn's Tournefort.

I find no Medicinal Virtues attributed to them.

CERATUM. A Cerate. What the Antients call'd a Cerate was somewhat thicker in Consistence than their *Acopon*, and *Cerelæon*, and softer than a Plaster, according to Galen; but Paulus Aegineta informs us, that the *Acopon* was of a middle Consistence betwixt the Cerate and Plaster. The Cerate was made of Oil and Wax, to which Powders were sometimes added. The general Rule as to the Proportion was, to put twelve Parts of Wax, four Parts of Oil, and one of Powder, into the Composition. But Cerates were sometimes made without any Wax at all, and of unctuous Ingredients and Powders only.

Amongst the Moderns Cerates are prepar'd of oily or fat Substances, Gums, Resins, Balsams, and Powders, united together with a proper Proportion of Wax, to which sometimes Mucilages, and various Sorts of Juices, are added, in such a manner, as that the Composition may be more thick than an Ointment, and more soft than a Plaster. The Rule laid down by Authors is to take eight Parts of Oil, Fat, or Juices, four of Wax, and one or two of Powders. Others order three Ounces of Oil to half an Ounce of Wax, and two or three Drams of Powder. But as in warm Weather Oils and unctuous Substances are more fluid than in cold, a proper Allowance is to be made for this. The Method of making a Cerate is, to melt the fusible Ingredients over the Fire, and then to stir in the Powders till the Mixture grows cool. Sometimes a Cerate is made by adding eight Parts of any Ointment to two or three of Wax; and sometimes by lowering a Plaster by the Addition of a sufficient Quantity of Oil. A Cerate is generally directed to be spread on Linen or Leather, and to be apply'd to the Part intended to be reliev'd, and they are used for all manner of Intentions, as to relax, mollify, digest, cicatrize, contract, &c.

Quincy says, that a Cerate differs from an Ointment only in obtaining an higher Consistence. There are but two Prescriptions now given by the College under this Title, the first a Cooler, the other a moderate Detergent; but they are so readily made, that they are hardly any-where kept.

Ceratum Album: The white Cerate.

Take of the whitest Wax, four Ounces; of Oil of sweet Almonds, five Ounces; of the finest Sperma-ceti, one Ounce; of Cerufs washed in Rose-water, one Ounce and an half; of Camphire, half an Ounce: Make them into a Cerate, S. A.

Ceratum Citrinum: The yellow Cerate.

Take of yellow Resin, half a Pound; of Sheeps-suet, four Ounces; of the best Turpentine, two Ounces: Let them be melted by a gentle Fire; then give a little Boil, and strain so as to make a Cerate.

There are several under this Title in the old officinal Dispensatories, and especially those of our College; but they are all so troublesome of Composition, so inelegant, and so little used, that they are thrown out, and these two only added new, which are both easy to make, and cleanly to use. But the chief Reason why this Class is so much reduced, seems to be the Conveniency of providing for all the Intentions they are suited for by extemporaneous Prescriptions, so that there is no Occasion to trouble the Shops with them till they are called for. Quincy's London Dispensatory.

Turner's Cerato, or *Ceratum o Lapido Calaminari*, is describ'd under the Article CADMIA.

CERAUNIA, five fulminariis Lapis, Offic. Ceraunius, Boet. 480. Worm. 74. Charlt. Foss. 30. De Lact. 155. Aldrov. Mus. Metall. 606. Schw. 372. Kentm. 30. *Ceraunia vel Ceraunias*, Gesn. de Lap. 61. THUNDER-STONES,

This is a Stone of a pyramidal Figure, either black or brown. Authors make this different from the *Lapis Belemnites*. It is principally found in *Germany*.

The Women superstitiously rub their Knees and Breasts with these Stones, in case of Tumors or Defluxions on those Parts. It is also esteemed good for the Dropsy and Jaundice. But I don't know that Experience attests any of these Virtues.

CERAUNO-CHRYSON. A Name for the *Aurum Fulminaris*. *Johnson*.

CERBERUS *Triceps* is the *Pulvis Cornachini*. In the chymical Language it imports a triple Mercury, from Salt, Quick-silver, and Vitriol. *Castellus* from *Libavius*.

CERCHNALEOS, *κερχναλέος*. Any thing which causes Wheezing or Hoarseness.

CERCHNOS, *κερχνος*. A Wheezing, or hoarse Noise made in Respiration, on account of some Disorder in the *Larynx*, or *Aspera Arteria*, or both. The Word is frequently us'd by the Greek Medicinal Writers in this Sense.

CERCIO.

This, according to *Johnson*, is an Indian Bird as large as a Starling, of different Colours, almost always shaking its Tail. The Inhabitants teach it to talk, and it is more docile than the Parrot; there are no Medicinal Virtues attributed to it. *Le-mery des Drogues*.

CERCIS, *κερκίς*. It signifies a Pestil, an Instrument to pound any thing with; or the Bone in the Arm call'd the *Radius*.

CERCOPES, *κερκωπες*. Artful Cheats and Impostors, a Set of People who are represented by *Galen* as much conversant in the Stews in *Rome*. There is a sort of People among us in low Life, who seem to be their Successors; these are Retainers to the Brothels, who at once act the Part of Bullies, Pimps, Intendants of Health, and Cullies; and who are attach'd to these Scenes of Debauchery, partly by their vicious Inclinations, and partly by the Necessity they lie under of eating, which, perhaps, without this sort of Complaisance might be attended with some Difficulty.

CERCOPITHECUS. A Monkey.

CERCOSIS, *κερκωσις*. A Disease of the Clitoris, which consists in its preternatural Enlargement.

CERDAC. Mercury. *Rulandus*.

CEREA. Ear-wax.

CEREALIA. All Sorts of Corn with which Bread is made, so call'd from *Ceres*, who was thought by the Heathens to have taught Mankind the Uses of Corn.

CEREBELLUM. The posterior Part of the Brain.

CEREBRUM. The Brain.

The Name of Brain is given to all that Mass which fills the Cavity of the Cranium, and which is immediately surrounded by two Membranes, called *Meninges* by the Greeks, and *Materia* by others, because they were commonly of Opinion, that these Membranes were the Origin, and, as it were, the Mother of all the other Membranes of the Body.

This general Mass is divided into three particular Portions; the Cerebrum or Brain, properly so called, the Cerebellum, and Medulla Oblongata: To these three Parts, contained within the Cranium, a fourth is added, which fills the great Canal of the Spina Dorsi, by the Name of Medulla Spinalis, being a Continuation of the Medulla Oblongata.

The Cerebrum, properly so called, is a kind of medullary Mass, of a moderate Consistence, and of a greyish Colour on the outer Surface, filling all the superior Portion of the Cavity of the Cranium, or that Portion which lies above the transverse Septum. The upper Part of the Cerebrum is of an oval Figure, like half an Egg cut lengthwise, or rather like two Quarters of an Egg cut lengthwise, and parted a little from each other. It is flatter on the lower Part, each lateral Half of which is divided into three Eminences called Lobes, one anterior, one middle, and one posterior.

The Substance of the Cerebrum is of two Kinds, distinguished by two different Colours; one Part of which is softest, being of a greyish or ash Colour; the other, which is more solid, being very white. The ash-coloured Substance lies principally on the outer Part of the Cerebrum like a kind of Cortex, from whence it has been named the Cortical Substance, or Cineritious. The white Substance occupies the inner Part, and is named Substantia Medullaris, or simply Substantia Alba.

The Cerebrum is divided into two lateral Portions, separated by the Falx, or great longitudinal Septum of the Dura Mater. They are generally termed Hemispheres, but they are more like Quarters of an oblong Spheroid. Each of these Portions is divided into two Extremities, one anterior, and one posterior, which are termed the Lobes of the Cerebrum, between which there is a large inferior Protuberance, which goes by the same Name; so that in each Hemisphere there are three Lobes, one anterior, one middle, and one posterior.

The anterior Lobes (*Tab. 12. A A.*) lie upon those Parts of the Os Frontis, which contribute to the Formation of the Orbita, and of the frontal Sinuses, commonly called the anterior Fossæ of the Basis Cranii. The posterior Lobes (*Tab. 12.*

B B.) lie on the transverse Septum; and the middle Lobes, in the middle or lateral Fossæ of the Basis Cranii.

Each lateral Portion of the Cerebrum has three Sides, one superior, which is convex; one inferior, which is uneven; and one lateral, which is flat, and turned to the Falx. Thro' the whole Surface of these three Sides we see Inequalities or Windings like the Circumvolutions of the Intestines, formed by waving Streaks or Furrows very deep and narrow, into which the Septa or Duplicatures of the Pia Mater insinuate themselves, and thereby separate these Circumvolutions from each other, which are represented *Tab. 7.*

Near the Surface of the Cerebrum, these Circumvolutions are at some Distance from each other, representing serpentine Ridges; and in the Interstices between them the superficial Veins of the Cerebrum are lodged, between the two Laminæ of the Pia Mater, from whence they pass into the Duplicature of the Dura Mater, and so open into the Sinuses.

These Circumvolutions are fixed through their whole Depth to the Septa or Duplicatures of the Pia Mater, by an infinite Number of very fine vascular Filaments, as may be seen by pulling the Circumvolutions a little asunder with the Fingers.

When they are cut transversely, we observe, that the medullary Substance lies in the Middle of each Circumvolution, so that there is the same Number of internal medullary Circumvolutions as of external cortical ones; the first representing white Laminæ invested by others of an ash Colour; but the cortical Substance is, in many Places, thicker than the medullary.

The anterior and middle Lobes of the Cerebrum on each Side are parted by a deep narrow Sulcus, which ascends obliquely backward, from the Temporal Ala of the Os Sphenoides to near the Middle of the Os Parietale; and the two Sides of this Division have each their particular Ridges and Circumvolutions, which gives a very great Extent to the cortical Substance. This Sulcus is termed *Fissura Magna Sylvii*, or simply *Fissura Cerebri*.

Having cut off the Falx from the Crista Galli, and turned it backward; if we separate gently the two lateral Parts, or Hemispheres of the Cerebrum, we see a longitudinal Portion of a white convex Body, which is named *Corpus Callosum*. It is a middle Portion of the medullary Substance, which under the inferior Sinus of the Falx, and also a little toward each Side, is parted from the Mass of the Cerebrum, to which it is simply contiguous from one End of that Sinus to the other; so that at this Place the Edge of the Inside of this Hemisphere only lies on the *Corpus Callosum*, much in the same manner, as the anterior and posterior Lobes lie on the Dura Mater. Both Extremities of this medullary Body terminate by a small Edge bent transversely downward.

The Surface of the *Corpus Callosum* is covered by the Pia Mater, which runs in between the lateral Portions of this Body, and the lower Edge of each Hemisphere. Along the Middle of its Surface, from one End to the other, there is a kind of Raphe, formed by a particular Intexture of Fibres, which cross each other; for though these Fibres appear to be transverse, yet they are really a little oblique, and those which come from the Right Side, intersect those that come from the Left. This Raphe is made more perceivable, by two small medullary Cords which accompany it on each Side, and adhere closely to the transverse Fibres.

The *Corpus Callosum* becomes afterwards continuous on each Side with the medullary Substance, which, through all the remaining Part of its Extent, is entirely united with the cortical Substance, and, together with the *Corpus Callosum*, forms a medullary Arch or Vault, of an oblong or oval Figure. To perceive this, the whole cortical Substance, together with the medullary Laminæ mix'd with it, must be cautiously and dexterously cut off in the same Direction with the Convexity of the Cerebrum. After which, we may observe a medullary Convexity, much smaller than that which is common to the whole Cerebrum, but of the same Form; so that it appears like a medullary Nucleus of the Cerebrum, especially when we consider it together with the medullary Substance of the inferior Part or Basis of the Cerebrum. And from thence *M. Vieussens* took Occasion to name this Nucleus the *Centrum Ovale*.

Under this Arch are two lateral Cavities, much longer than they are broad, and very shallow, separated by a transparent medullary Septum, of which hereafter. These Cavities are generally named the anterior superior Ventricles of the Cerebrum, to distinguish them from too other smaller Cavities which are situated more backward, as we shall see presently; but the Name of lateral or great Ventricles given them by *Steno*, is more proper than either of the other two.

The lateral Ventricles are broad, and rounded at those Extremities, which lie next the transparent Septum. They go from before backward, contracting in Breadth, and separating from each other gradually in their Progress. Afterwards they bend downwards, and return obliquely from behind forward in a Course, like the Turning of a Ram's Horn, and terminate almost under their superior Extremities, only a little more backward and outward.

At the Place where they begin to bend, in order to run downward,

downward, and then backward, there is on each Side a particular Elongation, which runs from before backward, and terminates in a triangular pointed Cavity turned a little inward, the two Points resembling Horns. These Ventricles are everywhere lined with a thin Membrane.

The transparent Partition, or Septum Lucidum, as it is commonly called, lies directly under the Raphe or Suture of the Corpus Callosum, of which it is a Continuation, and a kind of Duplication. It is made up of two medullary Laminæ, more or less separated from each other by a medullary Cavity, sometimes filled with a serous Substance. This Cavity, in some Subjects, reaches a great Way backwards; and, I am inclin'd to think, communicates with the third Ventricle, of which hereafter.

The Septum Lucidum is united by its lower Part to the anterior Portion of that particular medullary Body, called improperly the Fornix with three Pillars, because of some Resemblance it is thought to bear to the Arches of antient Vaults. It is in Reality nothing but the Corpus Callosum, the lower Side of which is like a hollow Cieling with three Angles, one anterior, and two posterior; and three Edges, two lateral, and one posterior. The lateral Edges are terminated each by a large semicylindrical Border, like two Arches, which, uniting at the anterior Angle, form, by their Union, what is called the anterior Pillar of the Fornix; and as they run backward separately toward the two posterior Angles, they have then the Name of the posterior Pillars.

The anterior Pillar, being double, is larger than either of the posterior; and the Marks of this Duplicity always remain. Immediately below the Basis of this Pillar, we observe a large, white, short, medullary Rope, stretched transversely between the two Hemispheres, and commonly called the anterior Commissure of the Cerebrum. It is to this Pillar that the Septum Lucidum adheres; but it has no total Adhesion below, and therefore the two lateral Ventricles communicate with each other. The posterior Pillars are bent downward, and continued thro' the lower Portions of the Ventricles all the Way to their Extremities, resembling a Ram's Horn, which is a Name which has been given to them. They diminish gradually in Thickness during this Course, and at their Outfides they have each a small, thin, flat, collateral Border, to which the Name of Corpora Fimbriata is owing.

The inferior Surface of the triangular Cieling, which lies between the Arches, is full of transverse, prominent, medullary Lines; for which Reason the Antients called it Psaloides and Lyra, comparing it to a stringed Instrument, something like what is now called a Dulcimer.

The Fornix being cut off and inverted, or quite removed, we see, first of all, a vascular Web, called Plexus Choroides, and several Eminences more or less covered by the Expansion of that Plexus. There are four Pairs of Eminences which follow each other very regularly, two large, and two small. The first two great Eminences are named Corpora Striata; and the second, Thalami Nervorum Opticorum. The four small Eminences are closely united together; the anterior being called Nates, and the posterior, Testes; but it would be better to call them simply, anterior and posterior Tubercles. Immediately before these Tubercles, there is a single Eminence called Glandula Pinealis.

The Corpora Striata got that Name, because, in scraping them with the Knife, we meet with a great Number of white and Ash-colour'd Lines alternately disposed, which are only the transverse Section of the medullary and cortical Laminæ, mixed together in a vertical Position in the Basis of the Cerebrum, as appears evidently by Incisions made from above downward. These two Eminences are of a greyish Colour on the Surface; oblong, roundish, pyriform, and larger on the fore than the back Part, where they are narrow and bent.

They lie in the Bottom of the superior Cavity of the lateral Ventricles, which they resemble in some measure in Shape, their anterior Parts being near the Septum Lucidum, from which they separate gradually as they run backward, and diminish in Size. They are in reality the convex Bottoms of the Ventricles, and it is at the lower Part of the Interstice, between the largest Portions of them, that we observe the great transverse Cord, named the anterior Commissure of the Cerebrum, which I mentioned already in describing the anterior Pillar of the Fornix Callosum. This Cord communicates more particularly with the Bottom of the Corpora Striata, by a Turn toward each Side.

The Thalami Nervorum Opticorum are so named, because these Nerves arise principally from them. They are too large Eminences placed by the Side of each other, between the posterior Portions or Extremities of the Corpora Striata. Their Figure is semispheroidal, and a little oval; and they are of a whitish Colour on the Surface; but their inner Substance is partly greyish, and partly white; so that, in cutting them, we see Streaks of different Colours, like those of the Corpora Striata.

These two Eminences are closely joined together, and at their convex Part they are so far united, as really to become

one Body, the whitish outer Substance being continued uniformly over them both. This Substance is very thin, and falls to Pieces only by the Weight of the lateral Parts of the Brain when taken out of the Cranium. Therefore to learn the Structure of these Eminences, they must be examined *in Situ*; and even there they must be handled very gently.

Immediately within this whitish common Substance, these two Eminences are closely contiguous till about the Middle of their Thickness; and from thence they separate insensibly toward the Bottom, where, by the Space left between them, a particular Canal is formed, named the third Ventricle, one Extremity of which opens forward, the other backward, as we shall see hereafter. Some Anatomists have mistaken the superficial Connection of these Eminences for the Pons Varolii.

At the Bottom, these two Eminences are elongated downward toward both Sides, into two thick, round, whitish Cords, which separate from each other like Horns, by a large Curvature; and afterwards by a small Curvature, turned forward in an opposite Direction to the former, and representing the Tip of an Horn, they approach each other again. The Size of these Ropes diminishes gradually from their Origin to their anterior Reunion.

The Tubercles are four in Number, two anterior, and two posterior; adhering together, as if they made but one Body tuated behind the Union of the Thalami Nervorum Opticorum. They are transversely oblong; the anterior being a little more rounded, and broader or larger from before backward, than the posterior. Their Surface is white, and their inner Substance greyish. The Names of Nates and Testes given to these Tubercles are very impertinent, there being no Resemblance between them and the Things from whence these Names are taken. I should like to call them Quadrigemina; that Term being used by Anatomists on another like Occasion, to express four small Muscles lying near each other, and inserted round the great Trochanter of the Os Femoris.

Directly under the Place, where the Tubercles of one Side are united to those of the other Side, lies a small middle Canal, which communicates by its anterior Opening with the third Ventricle, which belongs to the Cerebellum, as we shall afterwards see.

Where the convex Parts of the two anterior Tubercles join these posterior convex Parts of the Thalami Nervorum Opticorum, an Interstice or Opening is left between these four Convexities, which communicates with the third Ventricle, and with the small middle Canal. Instead of the ridiculous Name of Anus, which has been given to this Opening, it may be called Foramen Commune Posterius, to distinguish it from another which shall be mentioned hereafter, by the Name of Foramen Commune Anterius.

The Glandula Pinealis, *Tab. 12. Fig. 2. f.* is a soft greyish Body, about the Size of an ordinary Pea, irregularly round, and sometimes of the Figure of a Pine-apple, situated behind the Thalami Nervorum Opticorum, above the Tubercula Quadrigemina. It is fixed like a small Button to the lower Part of the Thalami, by two very white medullary Pedunculi, which at the Gland are very near each other, but separate almost transversely toward the Thalami.

It seems to be mostly of a cortical Substance, except near the Foot-stalks, where it is something medullary. The Foot-stalks are sometimes double, as if they belonged to the two anterior Tubercles. This Body adheres very close to the Plexus Choroides, by which it is covered, as we shall see hereafter; and it therefore requires some Dexterity to separate it from the Glandula, without altering its Situation, or breaking the Pedunculi. This Gland has been often found to contain Gravel. Below the Glandula Pinealis there is a medullary transverse Cord, called the Posterior Commissure of the Hemispheres of the Cerebrum.

Between the Basis of the anterior Pillar of the Fornix, and the anterior Part of the Union of the Optic Thalami, lies a Cavity or Fossula named Infundibulum. It runs down towards the Basis of the Cerebrum, contracting gradually, and terminates in a strait Course, by a small membranous Canal, in a softish Body, situated in the Sella Sphenoidalis, named Glandula Pituitaria. The Infundibulum opens above, immediately before the Optic Thalami, by an oval Hole, named Foramen Commune Anterius, and consequently communicates with the lateral Ventricles.

At the lower Part of the Thalami Nervorum Opticorum, or Beds of the Optic Nerves, directly under their Union, lies a particular natural Canal, called the third Ventricle of the Cerebrum. I call it a natural Canal, that we may not mistake for it an accidental Fissure, which lies between the Thalami in a Brain, taken out of the Cranium, as I have already said.

This Canal opens forward into the Infundibulum, under the Foramen Commune Anterius, by which it likewise communicates with the lateral Ventricles. It opens backwards, under the Foramen Commune Posterius, between the Thalami and Tubercula

Tubercula Quadrigemina, opposite to the small middle Canal which goes to the Cerebellum.

The Plexus Choroides is a very fine vascular Texture, consisting of a great Number of arterial and venous Ramifications, partly collected in two loose Fasciculi, which lie one in each lateral Ventricle, and partly expanded over the neighbouring Parts, and covering in a particular manner the Thalami Nervorum Opticorum, or Beds of the Optic Nerves, Glandula Pinealis, Tubercula Quadrigemina, and the other adjacent Parts, both of the Cerebrum and Cerebellum, to all which it adheres.

In each lateral Portion of this Plexus we observe a venous Trunk, the Ramifications of which are spread thro' the whole Extent of the two Portions. Near the Glandula Pinealis these two Trunks approach each other, and uniting behind that Gland, they open into the Torcular, or fourth Sinus of the Dura Mater. When we blow into one of these Trunks toward the Plexus, the Air passes into all its Ramifications; and in some Subjects these two Veins form one Trunk, which opens into the Sinus.

The ventricular or loose Portions of the Plexus often appear to contain a great Number of Tubercles like Glands, which in the natural State are extremely small, but grow bigger in Diseases. To be able to examine them as we ought, the loose Portions must be made to swim in clear Water, and be there carefully expanded; then, by the Help of a Microscope, we may see these Tubercles in the natural State, like small Folliculi, or little Bags more or less flatted.

Besides this vascular Web or Plexus of the Septum Lucidum; the Sides of the Fornix, of the Eminences, Ventricles, Canals, and Infundibulum, are all covered by a very fine Membrane, in which, by Injections or Inflammations, we discover a great Number of very fine Vessels. This Membrane is in a manner a Continuation of the Plexus, and that seems to be a Detachment from the Pia Mater. By the same means we likewise discover an extremely thin Membrane on the Insides of the Duplication of the Septum, though in some Subjects these Sides touch each other.

The pituitary Gland is a small spongy Body lodged in the Sella Sphenoidalis, between the sphenoidal Folds of the Dura Mater. It is of a singular kind of Substance, which seems to be neither medullary nor glandular. On the Outside it is partly greyish, and partly reddish, and white within. It is transversely oval or oblong, and on the lower Part, in some Subjects, it is divided by a small Notch into two Lobes, like a Kidney-bean. It is covered by the Pia Mater as by a Bag, the Opening of which is the Extremity of the Infundibulum; and it is surrounded by the small circular Sinuses, which communicate with the Sinus Cavernosi.

CEREBELLUM.

The Cerebellum is contained under the transverse Septum of the Dura Mater. It is broader laterally, than on the fore or back Sides, flatted on the upper Side, and gently inclined both Ways, answerable to the Septum which serves it as a kind of Tent or Ceiling. On the lower Side it is rounder, and on the back Side it is divided into two Lobes, separated by the occipital Septum of the Dura Mater.

It is made up like the Cerebrum, of two Substances, but it has no Circumvolutions on its Surface. Its Sulci are pretty deep, and disposed in such a manner, as to form thin, flat Strata, more or less horizontal, between which the internal Lamina of the Pia Mater insinuates itself, by a Number of Septa equal to that of the Strata.

Under the transverse Septum, it is covered by a vascular Texture, which communicates with the Plexus Choroides. It has two middle Eminences called Appendices Vermiformes, one anterior and superior, which is turned forward; the other posterior and inferior, which goes backward. There are likewise two lateral Appendices, both turned outward. They are termed Vermiformes, from their Resemblance to a large Portion of an Earthworm.

Besides the Division of the Cerebellum into lateral Portions, or into two Lobes, each of the Lobes seems to be likewise subdivided into three Protuberances, one anterior, one middle or lateral, and one posterior; but they are not in all Subjects equally distinguished, either by their Convexity or Limits; but they may always be distinguished by the Direction of their Strata, those of the middle and anterior Protuberance being less transverse than in the posterior.

When we separate the two Portions or Lobes, having first made a pretty deep Incision; we discover, first of all, the posterior Portion of the Medulla Oblongata, of which hereafter; and in the posterior Surface of this Portion, from the Tubercula Quadrigemina, all the Way to the posterior Notch in the Body of the Cerebellum, and a little below that Notch, we observe an oblong Cavity, which terminates backward like the Point of a writing Pen. This Cavity is what is called the fourth Ventricle.

At the Beginning of this Cavity, immediately behind the

small common Canal which lies under the Tubercles, we meet with a thin medullary Lamina, which is looked upon as a Valve between that Canal and the fourth Ventricle. A little behind this Lamina, the Cavity grows wider towards both Hands, and then contracts again to its first Size. It is lined interiorly by a thin Membrane, and seems oftentimes to be distinguished into two lateral Parts, by a kind of small Groove, from the Valvular Lamina, to the Point of the Calamus Scriptorius.

This Membrane is a Continuation of that which lines the small Canal, the third Ventricle, Infundibulum, and the two great Ventricles. To be able to see the fourth Ventricle in its natural State, in which it is narrowest, it must be laid open while the Cerebellum remains in the Cranium; and, in order to that, the Os Occipitis must be sawed very low down.

On each Side of this Ventricle the medullary Substance forms a Trunk, which expands itself in form of Laminæ through the cortical Strata. We discover these medullary Laminæ according to their Breadth, by cutting the Cerebellum in Slices almost parallel to the Basis of the Cerebrum; but if we cut one Lobe of the Cerebellum vertically from above downward, the medullary Substance will appear to be dispersed in Ramifications through the cortical Substance. These Ramifications have been named Arbor Vitæ, and the two Trunks from whence these different Laminæ arise, are called Pedunculi Cerebelli.

We cannot go on with the Description of the other middle Parts of the Basis of the Cerebellum, before that of the middle Parts of the Basis of the Cerebrum, because these two Kinds of Parts are united, and jointly form the Medulla Oblongata. Winslow says, he shall only add here, that the Strata of both Substances of the Cerebellum are not always of the same Extent, in the same Portions or Protuberances of each Lobe. This appears merely by viewing the convex or outer Surface of the Cerebellum; for there we see, at different Distances, some cortical Strata shorter than others, and likewise that the Extremities of the short Strata diminish gradually in Thickness, till they are quite lost between two long ones.

If we make a small Hole in the external Lamina of the Pia Mater, over one of the Lobes of the Cerebellum, without touching the inner Lamina, and then blow into the cellular Substance, by which these two Laminæ are connected, thro' a small Pipe introduc'd into the Hole, the Air will gradually swell that Substance, and separate the Strata more or less equally from each other, through their whole Extent; and we shall see, at the same time, the Disposition of all the membranous Septa, or Duplicatures of the internal Laminæ of the Pia Mater, with the numerous Distribution of the fine Blood-vessels which run upon it, especially after a lucky Injection, or in an inflammatory State of these Membranes.

MEDULLA OBLONGATA.

The Medulla Oblongata is a medullary Substance, situated from before backward in the middle Part of the Basis of the Cerebrum and Cerebellum, without any Discontinuation, between the lateral Parts of both these Bases; and, therefore, it may be look'd upon as one middle medullary Basis, common to both Cerebrum and Cerebellum, by the reciprocal Continuity of their medullary Substances, thro' the great Hole in the transverse Septum of the Dura Mater; which common Basis lies immediately on that Portion of the Dura Mater which lines the Basis of the Cranium. The Medulla Oblongata is, therefore, justly esteem'd to be a third general Part of the whole Mass of the Brain, or as the common Production, or united Elongation, of the whole medullary Substance of the Cerebrum and Cerebellum.

To prevent, however, false Ideas either in viewing ourselves, or in shewing to others, the Medulla Oblongata thus inverted, it is very necessary often to call to mind, that all which appears superior in that Situation is inferior in the natural State.

The lower Side of the Medulla Oblongata, in an inverted Situation, presents to our View several Parts, which are, in general, either medullary Productions, Trunks of Nerves, or Trunks of Blood-vessels.

The principal medullary Productions are these: The Branches of the Medulla Oblongata, which have likewise been nam'd Crura Anteriora, Femora, and Brachia Medullæ Oblongatæ, and Pedunculi Cerebri: The transverse Protuberance, call'd likewise Processus Annularis, or Pons Varolii: The small or posterior Branches, call'd Pedunculi Cerebelli, or Crura Posteriora Medullæ Oblongatæ: The Extremity or Cauda of the Medulla Oblongata, with two Pair of Tubercles, one of which is nam'd Corpora Olivaria, the other Corpora Pyramidalia: And to all these Productions we must add a Production of the Infundibulum, and two medullary Papillæ.

The great Branches of the Medulla Oblongata are two very considerable medullary Fasciculi, the anterior Extremities of which are separated, and the posterior united; so that, taken both together, they represent a Roman V. These Fasciculi are flat, much broader before than behind; their Surfaces being compos'd of several longitudinal and distinctly prominent medullary Fibres. Their anterior Extremities seem to be lost at the lower

lower Part of the Corpora Striata; and it is for that Reason that they are look'd upon as the Pedunculi of the Cerebrum.

The transverse, annular, or rather semiannular Protuberance, is a medullary Production, which seems, at first Sight, to surround the posterior Extremities of the great Branches; but the medullary Substance of this Protuberance is, in reality, intimately mix'd with that of the two former. *Varolius*, an ancient *Italian* Author, viewing those Parts in an inverted Situation, compar'd the two Branches to two Rivers, and the Protuberance to a Bridge over them both; and from thence it has the Name of Pons Varolii. Its Surface is transversely streak'd, and it is divided into two lateral Parts, by a very narrow longitudinal Depression, which does not penetrate into its Substance.

The small Branches of the Medulla Oblongata are lateral Productions of the transverse Protuberance, which, by their Roots, seem to encompass that medullary Portion in which the fourth Ventricle, or Calamus Scriptorius, is form'd. They form, in the Lobes of the Cerebellum, on each Side, these medullary Expansions, a vertical Section of which shews the white Ramifications commonly call'd Arbor Vitæ; and they may be justly enough styled Pedunculi Cerebelli.

The Extremity is no more than the Medulla Oblongata contracted in its Passage backward to the anterior Edge of the great Foramen of the Os Occipitis, where it terminates in the Medulla Spinalis; and in this Part of it several things are to be taken notice of: We see, first of all, four Eminences, two nam'd Corpora Olivaria, and the other two Corpora Pyramidalia. Immediately afterwards it is divided into two lateral Portions, by two narrow Grooves, one on the upper Side, the other on the lower. They both run into the Substance of the Medulla, as between two Cylinders, flatted on that Side by which they are join'd together.

When we separate these Ridges with the Fingers, we observe a crucial Intertexture of several small medullary Cords, which go obliquely from the Substance of one lateral Portion into the Substance of the other. *M. Petit*, Member of the Royal Academy of Sciences, and Doctor of Physic, is the Author of this Discovery.

The Corpora Olivaria and Pyramidalia are whitish Eminences, situated longitudinally near each other on the lower Side of the Extremity or Cauda, immediately behind the transverse or annular Protuberances. The Corpora Olivaria are in the Middle, so that the Interstice between them, which is only a kind of superficial Groove, answers to the inferior Groove of the following Portion.

The Corpora Pyramidalia are two lateral Eminences depending on the Olivaria. *Willis* gave the Name of Pyramidalia to what I have call'd Olivaria, after the late *M. Du Verney*, in his Treatise of the Organ of Hearing. These four Eminences are situated on the lower Half of the Medulla; which must be remember'd, because, in all Figures and Demonstrations, these Parts are represented as superior, which in their natural Situation are inferior. Thus these Eminences are under the fourth Ventricle, and under the Pedunculi Cerebelli.

The Tubercula Mamillaria, which are situated very near the Production of the Infundibulum, have been taken for Glands, probably because of their greyish inner Substance, which, however, does not seem to be any ways different from that of several other Eminences of the Medulla Oblongata; and, for that Reason, I choose rather to call them, from their Figure, Tubercula Mamillaria than Papillæ Medullares.

These Tubercles seem to have some immediate Relation to the Roots or Bases of the anterior Pillar of the Fornix; so that they might be nam'd, according to *Santerini*, the Bulbs of these Roots, tho' they appear to be likewise partly a Continuation of other Portions of the cortical and medullary Substance, of a particular Texture.

The Beak or Tube of the Infundibulum is a very thin Production from the Sides of that Cavity, and it is strengthen'd by a particular Coat given to it by the Pia Mater. It is bent a little from behind forward, toward the Glandula Pinealis, and afterwards expands again round this Gland.

The Membrana Arachnoides, or external Lamina of the Pia Mater, appears to be very distinctly separated from the internal Lamina, in the Interstices between all these Eminences on the lower Side of the Medulla Oblongata, without any visible cellular Substance between them. The internal Lamina adheres much more to the Surface of these Interstices than to that of the Eminences. The external Lamina is, as it were, buoy'd up by the Eminences, and equally stretch'd between their most prominent Parts, to which it sticks very close; and, in this respect, the Roots, or great Cornua of the optic Nerves, may be reckon'd among these Eminences.

We must observe, in general, concerning the Eminences of the Medulla Oblongata, that those which are medullary on their Outfides or Surfaces, are interiorly either entirely cortical, or partly cortical and partly medullary, or form'd by a singular Mixture of these two Substances, which still remains to be un-

folded, as well as many other Particularities observable in examining the internal Structure of the Brain.

From this common Portion of the Cerebrum and Cerebellum arise almost all the Nerves which go out of the Cranium, thro' the different Foramina by which its Basis is perforated. It likewise produces the Medulla Spinalis, which is no more than a common Elongation of the Cerebrum and Cerebellum, and of their different Substances; and, therefore, the Medulla Oblongata may justly be said to be the first Origin or primitive Source of all the Nerves which go out thro' the Spina Dorsi, and consequently of all the Nerves of the human Body.

MEDULLA SPINALIS.

The Medulla Spinalis is only an Elongation of the Extremity of the Medulla Oblongata; and it has its Name from its being contain'd in the bony Canal of the Spina Dorsi. It is, consequently, a Continuation, or common Appendix, of the Cerebrum and Cerebellum, as well because of the two Substances of which it is compos'd, as because of the Membranes by which it is invested.

Under the Article SPINA DORSI there is mention'd a ligamentary Tube, which lines the inner Surface of this bony Canal from the great occipital Foramen to the Os Sacrum, representing a very long flexible Funnel. There are also mention'd the yellowish, and very elastic Ligaments, which lie in the great posterior Notches of all the Vertebrae, and adhere very closely to the above-mention'd ligamentary Tube.

The Dura Mater, after it has lin'd the whole internal Surface of the Cranium, goes out by the great occipital Foramen, and forms a kind of Funnel in its Progress downward thro' the bony Canal of the Vertebrae. As it goes out at the occipital Hole, it joins the Beginning of the ligamentary Funnel already mention'd, and adheres very strongly to it. That Portion of the Pericranium, which terminates exteriorly at the Edge of the great Foramen, joins the Funnel likewise, which, by all these Accessions, becomes very strong, and capable of resisting the greatest Violences.

This Adhesion of the Dura Mater to the ligamentary Funnel is gradually discontinu'd below the first Vertebra; and from thence the Dura Mater forms a separate Tube, which runs down in the bony Canal all the Way to the Os Sacrum, the Capacity of it answering to that of the Canal; but it does not adhere closely to the Sides, as it does to that of the Cranium. It is surrounded by a slimy Substance, which, near the lower End of the Canal, resembles Fat.

The spinal Marrow is made up of a cortical and medullary Substance, as the Cerebrum and Cerebellum; but with this Difference, that the Ash-colour'd Substance lies within the other; and, in a transverse Section of this Medulla, the inner Substance appears to be of the Figure of an Horse-shoe, or of the Os Hyoides; the convex Side being turn'd forward, and the Extremities or Cauda backward.

The Body of the Medulla Spinalis runs down all the Way to the first Vertebra of the Loins, where it terminates in a Point. The Size of it is proportionable to that of the bony Canal, so that it is larger in the Vertebrae of the Neck than in those of the Back. It is a little flatted on the fore and back Sides; so that we may distinguish in it two Sides, one anterior, the other posterior, and two Edges. It is likewise, in a manner, divided into two lateral Halves, by a Groove which runs along the Middle of each Side, being a Continuation of those in the Extremity of the Medulla Oblongata.

Each lateral Portion sends off from both the fore and back Sides, between the Grooves and the Edges, at different Distances, flat Fasciculi of nervous Filaments turned toward the nearest Edge. The anterior and posterior Fasciculi, having got a little beyond the Edge of the Medulla, unite in Pairs, and form on each Side a kind of Knots, call'd Ganglions by Anatomists, each of which produces a nervous Trunk. These Ganglions are made up of a Mixture of cortical and medullary Substances, accompany'd by a great Number of small Blood-vessels.

The Dura Mater, which invests the Medulla, sends out, on each Side, the same Number of Vaginae as there are Ganglions and nervous Trunks. These Vaginae are Productions of the external Lamina, the internal Lamina, which is very smooth, and polish'd on the Inside, being perforated by two small Holes very near each other, where each Vagina goes off, thro' which Holes the Extremities of each anterior and posterior Fasciculus are transmitted; and, immediately after their Passage through the internal Lamina, they unite.

The triangular Spaces left between the two anterior and posterior Fasciculi, and Edge of the Medulla, are fill'd from one Extremity to the other by an indented Ligament, very thin and shining, having the same Number of Indentations as there are Pairs of Fasciculi. It is fix'd, at different Distances, to the Edge of the Medulla, from whence it sends Filaments to the internal Lamina of the Dura Mater, by which the anterior Fasciculi are distinguish'd from the posterior.

The Membrana Arachnoides is here very distinct from the internal Lamina of the Pia Mater, so that by blowing through a Hole made in the Arachnoides it will swell from one End to the other, like a transparent Gut. The internal Lamina, call'd in this Place simply the Pia Mater, adheres very closely to the Medulla Spinalis, and sends many Productions and Septa thro' its Substance. When we blow thro' a Hole made in the Pia Mater, thro' the Substance of one lateral Portion of the Medulla, the Air penetrates thro' the Whole, and the Pia Mater, which covers the other lateral Portion, is separated from it.

The Membrana Arachnoides adheres more closely to the Pia Mater at the lower than at the upper Part, being, in a manner, suspended by the indented Ligament, which runs along both Edges of the Medulla, and is fix'd by a Filament to the internal Lamina of the Dura Mater, in each Interstice between the nervous Fasciculi, as has been already said. It also gives off Elongations, in the same manner as the Dura Mater, to each nervous Trunk or Rope, as we shall see hereafter.

The NERVES of both MEDULLÆ, from their Origin to their going out of the CRANIUM.

The Nerves arise either from the Medulla Oblongata or Spinalis; they go out in Fasciculi dispos'd in Pairs; ten Pairs are reckon'd to belong to the Medulla Oblongata, of which nine go out thro' the Foramina of the Cranium, and the tenth arises from the Extremity of this Medulla, as it passes through the great occipital Hole; and, lastly, about thirty Pairs are reckon'd to belong to the Medulla Spinalis, of which seven pass thro' the lateral Notches of the Vertebrae Cervicis, twelve thro' those of the Back, five thro' those of the Loins, and five or six thro' the anterior Holes of the Os Sacrum, and one at the Sides of the Os Coccygis.

My Design is here principally to mention some particular Observations about the Nerves, while they remain within the Cranium, the rest of their Course thro' the whole Body is sufficiently describ'd under the Article NERVUS; and it would not be amiss, if the Reader first of all reviews that Article, before he peruses this.

The first Pair of Nerves that arise from the Medulla Oblongata are the Olfactory, *Tab. 7. a. a.* antiently call'd Processus Mamillares. They are two very flat and soft medullary Ropes, each arising first by medullary Fibres from the Outside of the lower Part of the Corpora Striata, between the anterior and middle Lobe, on each Side of the Cerebrum, and afterwards by another Filament more internally, and by a third which is more posterior, and very long. They run under the anterior Lobes of the Cerebrum, being lodg'd in two superficial Grooves in the Basis of these Lobes, and lying immediately on the Dura Mater, from the Clinoid Apophyses to the Os Ethmoides.

They are first of all considerably incurvated from without inwards, or towards each other; and, having reach'd near the back Side of the Os Ethmoides, they run for a small Space parallel to, and at some Distance from, each other; backward they are very thin, but they gradually increase in Bulk, in their Course forward toward each Side of the Crista of the Ethmoidal Bone, where they terminate in elongated Papillæ, the Substance of which appears to be softer and less white than that of the Ropes.

These Papillæ lie on the two Sides of the Lamina Cribrosa, and send down a nervous Filament into each Hole of that Lamina. At the same Place the Dura Mater sends off the same Number of Vaginae, which invest and accompany the nervous Filaments, and their Ramifications on the internal Parts of the Nose.

The second Pair, or optic Nerves, *Tab. 7. b. b.* arise from the Eminences call'd Thalami Nervorum Opticorum. The internal Carotids run upon the Outsides of these Nerves, immediately after their Union, and before they pass thro' the Foramina Optica.

Besides their Origin from the Optic Thalami, these Nerves have likewise a kind of Communication with the Tubercula Quadrigemina Anteriora by very fine Filaments, one Extremity of which is lost in the Tubercles, the other in the Roots of the great Arches or Bodies of the optic Nerves. The internal Structure of these Nerves seems to change at their Entrance into the optic Holes, as we shall see in another Place.

The Union of these Nerves, by the small Curvatures of their Cornua, is very difficult to be unfolded in human Bodies. This Union is commonly found to be very close, but, in some Subjects, it seems to be no more than a strong Adhesion; in others, to be partly made by an Interfection, or Crossing of Fibres. They have been found quite separate; and, in other Subjects, one of them has been observ'd to be very much alter'd, both in Size and Colour, thro' its whole Passage, the other remaining in its natural State.

The third Pair, call'd Nervi Motores Oculi Communes, Oculares Communes, and Oculo-musculares, *Tab. 7. c. c.* arise from the Union of the anterior Edge of the great transverse Protuberance, with the two great Branches of the Medulla Oblongata. They pierce the Dura Mater behind the

lateral Parts of the posterior Apophysis of the Sella Sphenoidalis, and pass afterwards, each in the neighbouring Sinus Cavernosi, by the Side of the carotid Artery, and all the Way to the broad Portion of the superior orbital Fissure, where they divide in the manner specify'd under the Article NERVUS.

The fourth Pair, call'd Nervi Trochleares, Musculares Obliqui Superiores, and most commonly Pathetici, *Tab. 7. d. d.* are very small and tender, and, in Proportion, very long. They arise each behind the Tubercula Quadrigemina, and from the lateral Part of the valviform Expansion, at the Entry of the fourth Ventricle. From thence they take their Course forward, all the Way to the Edge of the anterior Extremities of the transverse Sinus, where, on each Side, they enter the Duplicature of the Dura Mater, and, advancing into the Sinus Cavernosi, they accompany the third Pair to the superior orbital Fissure.

The fifth Pair, call'd Nervi Innominati, or Trigemini, *Tab. 7. f. f.* are at first large Trunks, arising chiefly from the lateral and posterior Parts of the great transverse Protuberance, and a little from the Corpora Olivaria and Pyramidalia. They run down obliquely forward on the Extremity of the upper or anterior Side of the Apophysis Petrosa, very near the Side of the Sella Sphenoidalis, where they enter the Duplicature of the Dura Mater and Sinus Cavernosi.

At their Entry into the Sinus they form a kind of flat irregular Ganglion, from which some Filaments are sent off to the Dura Mater; and, immediately afterward, each of them is divided into three great Branches, one superior or anterior, one middle, and one inferior or posterior. The first Branch, which may be term'd Ocularis or Ophthalmicus, accompanies the Nerves of the third and fourth Pairs to the superior orbital Fissure. The second, call'd Maxillaris Superior, goes out by the superior Maxillary Hole; and the third, nam'd Maxillaris Inferior, by the inferior maxillary Hole. As the great Trunk of this Nerve runs down, it perforates the Membrana Arachnoides, which, at this Place, forms a kind of Ceiling.

The sixth Pair, nam'd Motores Oculorum Externi, Oculares or Ophthalmici Externi, and Oculo-musculares Externi, *Tab. 7. g. g.* are small Nerves, but still not so small as the fourth Pair; and I have sometimes found them double. They arise partly from the oblong inferior Eminences immediately behind the transverse Protuberance, and partly from this Protuberance; and, passing immediately under it, they pierce the Dura Mater behind the occipital Symphysis of the Sphenoidal Bone.

They run on each Side of the Duplicature of the Dura Mater to the cavernous Sinus; and, having enter'd that Sinus, each of them accompanies the first Branch of the fifth Pair to the superior orbital Fissure. In this Course they communicate with the first Branch just mention'd, and are increased on the fore Part by a Filament or two, which arise from the great sympathetic Nerve, and run up with the Carotid.

The seventh Pair, nam'd Auditorii, *Tab. 7. h. h.* arise from the lateral and posterior Part of the transverse Protuberance, near the Pedunculi of the Cerebellum, by two Cords, one small and solid, the other large and soft, which, from thence, is call'd Portio Mollis, and the first Portio Dura, or, as I have nam'd it, Nervus Sympatheticus Minimus. The two Nerves on each Side accompany each other very closely all the Way to the internal Foramen Auditorium.

The eighth Pair, named Par Vagum, Nervi Vagi, or Sympathetici Medii, *Tab. 7. i. i. i. i.* arise from the posterior Extremities of the large Branches or Crura of the Medulla Oblongata, from the transverse Protuberance, and from the anterior Part of the inferior oblong Eminences behind the transverse Protuberances, by numerous Filaments, which all together make a broad Band on each Side, which runs toward the Foramen Lacerum, where it pierces the Dura Mater, and goes out thro' the anterior Part of that Hole; having been first joined by a nervous Portion, that runs up from the Medulla Spinalis thro' the great Occipital Foramen, by the Name of Nervus Accessorius Octavi Paris, or Nervus Spinalis. This additional Nerve goes out with that of the eighth Pair, thro' the Foramen Lacerum, lying behind it; but distinguish'd from it by a membranous Septum.

The ninth Pair, call'd Nervi Hypoglossi Externi, Hypoglossi Majores, and commonly Gustatorii, arise each from the lateral Part of the Extremity of the Medulla Oblongata, between the oblong inferior Eminences, by several Filaments, which, uniting together, form commonly two small Ropes on each Side, which pierce the Dura Mater separately; and, presently afterwards, form one Rope, which goes out of the Cranium thro' the anterior Condylode Hole.

The tenth Pair, call'd Nervi Suboccipitales, arise under the ninth Pair, chiefly from the anterior, and a little from the lateral Part of the Extremity of the Medulla Oblongata, opposite to the posterior Part of the Condylode Apophysis of the Occipital Bone, by a single Plane, or Fasciculus of small Filaments, which pierce the Dura Mater directly from within outward, at the same Place where the Vertebral Arteries perforate it from without inwards.

The Nerves form'd by the lateral Union of the anterior and posterior Filaments of the Medulla Spinalis go out of the bony Canal of the Spina Dorsi, toward each Side, thro' the intervertebral Holes, thro' the anterior Holes of the Os Sacrum, and the lateral Notches of the Os Coccygis; and from thence they have the general Name of Nervi Vertebrales. They are divided in the same manner as the Vertebrae, into seven Pair of Cervical Nerves, twelve Pair of Dorsal, five Pair of Lumbar, and five or six Pair of Nervi Sacri.

As the Spinal Marrow, which furnishes all these Nerves, seldom goes lower than the first or second Vertebrae of the Loins, the Situation of the Fasciculi of nervous Filaments must be different from that of the Holes thro' which they pass; and several of these Fasciculi, both anterior and posterior, must be longer than the rest. This we find, from Experience, to be the Case in the following manner.

The Fasciculi of nervous Filaments of the Medulla Spinalis, which produce the Cervical Nerves, run more or less transversely toward each Side, from their Origin to their Passage thro' the intervertebral Holes. The Fasciculi, which form the Dorsal Nerves, run a little obliquely downward, from their Origin to the intervertebral Holes; and those which form the Lumbar Nerves, run down more and more longitudinally, from the Medulla to the Holes by which they go out.

Therefore the Cervical Fasciculi are very short in the Spinal Canal; the Dorsal Fasciculi are longer; and the Fasciculi, from the Loins and Os Sacrum, very long. It must likewise be observed, that the Fasciculi of the four lowest Pairs of the Cervical Nerves, and first Pair of the Dorsal Nerves, are broader, and more compounded, than the following; because the Brachial Nerves are a Continuation of these. The Filaments belonging to the Lumbar Nerves, and those of the Os Sacrum, are likewise very broad, and made up of numerous Filaments, as being the Roots of the large Nerves which go to the lower Extremities. The Dorsal Filaments are very small.

The Cervical and Lumbar Fasciculi are not only broader, and made up of more Filaments, than the Dorsal, but also situated much closer to each other; the Lumbar Fasciculi being still more so than the Cervical; whereas in the Dorsal a considerable Interstice is left between the Fasciculi.

These Lumbar Fasciculi, from their Origin to the Extremity of the Os Sacrum, form, thro' the whole Canal of the Lumbar Vertebrae, and of the Os Sacrum, a large Bundle of nervous Ropes, call'd by Anatomists, Cauda Equina, because of some Resemblance which it bears to a Horse's Tail, especially when taken out of the Canal, and extended in clear Water.

Tho' the Medulla Spinalis ends at the first Vertebra of the Loins, the Vagina of the Dura Mater, by which it is invested, is continued thro' the rest of the bony Canal, all the Way to the Extremity of the Os Sacrum, and involves the great Bundle, or Cauda Equina; the Cords of which pierce it on each Side, nearly opposite to the Places where they pass thro' the intervertebral Holes, and the anterior Holes of the Os Sacrum.

This Vagina of the Dura Mater being separated from the Canal of the Vertebrae, and the lateral Elongations, which serve for particular Vaginae to the Cords, being cut off, it presently shrinks up, and contracts in the same manner as all the other elastic Parts of the human Body: For Instance, as an Artery does, when cut transversely, soon after Death. Therefore its true Length must be taken while it is *in Situ*, and likewise the true Situation of the lateral Elongations.

From all this a Conclusion may be drawn of great Importance, not only in anatomical and philosophical Inquiries, but also for understanding local Diseases, Wounds, &c. which is, that, when we have Occasion to consider any particular Nerves near the Vertebrae of the Back or Loins, or near the Os Sacrum, we must remember, that, in the Spina Dorsi, the Origin of these Nerves is not even with their Passage out of the Spine, but proportionably higher. If, for Instance, we inquire about any of the lowest Nervi Sacri near the Os Coccygis, we must not stop at the Extremity of the Os Sacrum; but trace its Origin as high as the last Vertebra of the Back, or first of the Loins.

The Membrana Arachnoides accompanies the original Fasciculi, separately, to their Passage thro' the lateral Elongations of the Dura Mater, forming a kind of Duplicature, Breaks, or Discontinuations, between the Cords which run in the Vagina of the Dura Mater. The internal Lamina of the Pia Mater, or the Pia Mater simply, as it is here reckon'd, adheres very closely both to the Fasciculi, and Filaments of which they are composed.

Among the original Productions of the Nerves of the Medulla Spinalis, we ought still to reckon the Formation of the Nervi Accessorii of the eighth Pair, or of those that I call Sympathetici Medii. They arise from the lateral Parts of this Medulla by several Filaments, about the third and fourth Vertebrae of the Neck, and sometimes lower. And, says *Winflow*, if my Memory does not fail me, I once traced them to the Middle of the Back. They run up on each Side, between

the anterior and posterior Ranks of the nervous Fasciculi, increasing gradually in Size, by the Accession of new Filaments from the posterior Fasciculi.

Having reach'd above the first Vertebra of the Neck, they have a kind of Adhesion or Communication with the neighbouring Ganglions of the Nervi Suboccipitales, or those of the tenth Pair. Above this Adhesion they receive two Filaments each, from the back Side of the Medulla; and afterwards continue their Course towards the great Occipital Foramen. As they enter the Cranium, they communicate with the Nerves of the ninth and tenth Pairs; and at the Foramen Lacerum they join those of the eighth Pair, with which they return out of the Cranium.

In the posterior Part of the Medulla Spinalis, near its lower Extremity, there is in some Subjects a longitudinal Depression, in which several transverse Fibres are situated; which tho' *Winflow* has not examined any further, he thought it proper to mention this Observation, as he says he found it in his Anatomical Common-place Book.

BLOOD-VESSELS of the BRAIN and MEDULLA SPINALIS.

The Arteries which supply the Cerebrum, Cerebellum, and Medulla Oblongata, come partly from the Carotids, which enter the Cranium thro' the Canals in the Apophyses Petrosae of the Temporal Bones, and partly from the Vertebrales, which enter by the great Occipital Foramen, and send off the Arteriae Spinalis into the Canal of the Spine for the Medulla lodg'd there.

All these Arteries are divided into several Branches, which send out a great Number of Ramifications, distributed thro' both Substances of the Brain, and thro' the whole Extent of the Pia Mater. The Dura Mater, both of the Cerebrum and Cerebellum, has Arteries peculiar to it.

The internal Carotid, on each Side, enters the Cranium by the great Canalis Petrosus, in an angular and winding Course. The inner Surface of this Canal is lined by a Production common to the Dura Mater, and inferior Pericranium; to which the Artery adheres only by a loose filamentary Substance, in which the plexiform Filaments run, which belong to the great sympathetic Nerve, commonly call'd the Intercostal.

Having pass'd thro' the bony Canal, it immediately bends upward, towards a Notch in the sphenoidal Bone, and thro' the Notch it enters the Cranium. Immediately after this, it penetrates the Cavernous Sinus on the Side of the Sella Sphenoidalis, where having form'd a third Curvature, it goes out from it, from below, upwards, and is bent a fourth time round the anterior Clinode Apophysis, from before backward. By this Course, it is in a manner bath'd in the Blood of the Cavernous Sinus, together with the third, fourth, fifth, and sixth Pairs of Nerves.

After this fourth Curvature, the internal Carotid having now reach'd the Side of the Infundibulum, and consequently being very near its Fellow, these two Arteries communicate sometimes by a very short transverse arterial Production. At this Place each of them divides into two principal Branches, one anterior, the other posterior; and sometimes into three, in which Case there is a middle Branch between the two former.

The anterior Branch runs first of all forward under the Basis of the Cerebrum, separating a little from the same Branch of the other Carotid. They approach each other again under the Interstice between the two olfactory Nerves, communicating by a very short Anastomosis, and sending small Twigs to that Pair of Nerves. They afterwards separate, being each divided into two or three Branches.

The first Ramification of the anterior Branch goes to the anterior Lobe of the Cerebrum. The second, which is sometimes double, is inverted on the Corpus Callosum, to which it gives Ramifications, as also to the Falx of the Dura Mater and middle Lobe of the Cerebrum. The third, which is sometimes a distinct Branch, sometimes only an additional Branch to the second, goes to the posterior Lobe of the Cerebrum. This third Branch is sometimes so considerable, as to deserve to be reckon'd the middle Branch of the three principal ones.

The posterior Branch communicates first of all with the vertebral Artery of the same Side, and then is divided into several Branches on the superficial Circumvolutions of the Cerebrum, and between these Circumvolutions all the Way to their Bottom. The anterior, and middle Branches when there are three, distributes the same Kind of Ramifications to the Circumvolutions and to their Interstices.

All these different Ramifications are in the Duplicature of the Pia Mater, from which they receive a Kind of additional Coats, and the Capillaries being distributed upon it in a reticular manner, afterwards penetrate the cortical and medullary Substance, in which last they terminate insensibly.

The vertebral Arteries enter thro' the great occipital Foramen, having first pierc'd on each Side the Elongations of the Dura Mater, at the same Place where the Suboccipital Nerves, or those of the tenth Pair, pierce it, as they go out; the Arteries in this Place lying above the Nerves.

At their Entry into the Cranium, they send each several Ramifications to the Cauda of the Medulla Oblongata, and to the Corpora Olivaria and Pyramidalia, which Ramifications are distributed on the Sides of the fourth Ventricle, produce the Plexus Choroides, are spread on the whole Surface of the Cerebellum, insinuate themselves between the Strata, always invested by the Duplicature of the Pia Mater, and are at length lost in both Substances of the Cerebellum.

Afterwards the two vertebral Arteries turn toward each other, for the most part immediately under the posterior Edge of the transverse or semiannular Protuberance of the Medulla Oblongata, where they unite, and form one common Trunk. This Trunk passes directly from behind forward, under the Middle of the great Protuberance, and partly in the middle Groove of the convex Surface of that Protuberance, at the anterior Edge of which it terminates.

In its Passage thro' the Groove, this Trunk sends off several small Branches on each Side, which surround transversely the lateral Portions of the Protuberances, being partly lodg'd in the small lateral Grooves of these Portions. These lateral Branches are afterwards distributed to the neighbouring Parts of the Cerebrum, Cerebellum, and Medulla Oblongata.

This common or middle Trunk of the vertebral Arteries, having reach'd the Edge of the great Protuberance, is divided again into two small Branches, each of which soon communicates with the Trunk of the internal Carotid on the same Side. Instead of this Bifurcation, the two last or most anterior lateral Branches, send each sometimes a small Branch forward, which form the Anastomoses with the internal Carotids.

The principal Arteries of the spinal Marrow, call'd commonly Arteriae Spinales, are two in Number, one anterior and one posterior, lodg'd in the Grooves, by which the Medulla is divided into lateral Portions on both Sides. They arise from the vertebral Arteries, a little above the great occipital Foramen, where these Arteries send each a small Branch downward as soon as they enter the Cranium; and having got under the Extremity of the Medulla Oblongata, they send off two other Branches backward.

The first two Branches, uniting soon after their Origin, form the Arteria Spinalis Anterior, which runs down within the Canal of the Vertebrae, along the anterior Groove of the Medulla. The other two small Branches are inverted on the Sides of the Medulla Oblongata, and from thence running backward, they unite much in the same manner with the first two, and form the Arteria Spinalis Posterior, which runs down along the posterior Groove of the Medulla Spinalis.

The two spinal Arteries, in their Course downward along the Medulla, send off on each Side lateral Ramifications, by which they frequently communicate with each other; and likewise with the vertebral Arteries of the Neck, with the Intercostals; and sometimes they are in a manner split for a little Way, and then unite again.

The Veins of the Cerebrum and Cerebellum may in general be look'd upon as Branches, not only of the longitudinal Sinus of the Dura Mater, and of the two great lateral Sinuses, but also of all the inferior Sinuses of that Membrane; in all which Sinuses the Veins terminate by different Trunks. Their principal Ramifications accompany all the cortical Circumvolutions of the Cerebrum, and Directions of the Strata of the Cerebellum, running always in the Duplicature of the Pia Mater. The Veins of the Plexus Choroides, in general, are of the Number of those already mention'd.

The Veins of the Medulla Spinalis are Branches partly of the superior Extremities of the two vertebral Veins, partly of the two venal Ropes, termed Sinus Venosi, which run down both Ways laterally on the anterior convex Side of the Production of the Dura Mater, and form, at different Distances, reciprocal Communications, by semiannular Arches, as by so many subordinate Sinuses. The two longitudinal Sinuses communicate likewise in their Passage with the vertebral Veins, in the same manner as the neighbouring Arteries.

Uses of the Brain, and of its Appendages in general.

We are obliged to the great *Malpighi* for the first and best Instructions concerning the Manner of examining the Structure of the Brain, especially that of the two Substances of which it is made up, and for putting us in a Condition to be able to conjecture something about its Uses. The Experiments and Observations of that illustrious and faithful Searcher into Nature, having been repeated by several excellent Philosophers, and confirm'd by comparative Anatomy, leave us no room to doubt, but that the Brain is a secretory Organ, or, as it is called by Anatomists, a Gland.

It is to no Purpose to dispute about Words, when we are agreed as to the Things themselves. Anatomists have, for many Years past, understood by the Word *Gland* an Organ fitted to separate some particular Fluid from the Mass of Blood, as universally as they mean by the Word *Muscle* all Sorts of fleshy

Fibres capable of Contraction; and this last Term might be cavil'd at, and reject'd, as justly as the other.

The whole Matter of Secretion must be own'd to be very obscure; but it is to be hoped, that the Brain and Liver will some time or other lead us so far into the Knowledge of it, as, at least, to be able to distinguish Truth from Falshood.

The greyish or ash Colour of the cortical Substance is not the Effect of a particular Mixture of Red and White; at least, we have no Experiment to prove it. The Blood, indeed, gives this Substance a slight redish Cast; but the ash Colour, which seems to be the Characteristic of the Structure of these secretory Organs, is not owing to that.

We learn from *M. Ruysch's* Anatomical Injections, that the cortical Substance is principally composed of Vessels; that, by making these Vessels swim in a clear pellucid Liquor, their Extremities represent an infinite Number of fine Brushes, or vascular Tufts; and that his Injection fills even the smallest Filaments of these Tufts. He tells us likewise, that in these last Filaments the Structure is alter'd; and that, by the Mechanism of this Change, the Functions attributed to Glands may be perform'd.

But still these Injections and Preparations do not unravel the Mystery, neither is the Existence of these Pencils or Tufts sufficiently demonstrated; for they are only the last Extremities of the small Arteries macerated in Water, or some other Liquor, after being injected, and then artfully separated from the other essential Parts of the Organ.

In the first Place, they are separated from the venous Extremities, which must answer to these Tufts, in what manner soever that be brought about. Secondly, they are separated from the membranous Filaments of the Pia Mater, which, in the natural State, tie these arterial Extremities to each other, and give them a different Disposition from that of Tufts or Pencils. Thirdly, by this Preparation the arterial Extremities are separated from their Connections with the medullary Substance; which both Experiments and comparative Anatomy shew to be fibrous.

It is no ways surprising, that these Capillary Extremities, thus stript, should float loosely and freely, when moved in a Fluid, and that they should put on the Appearance of Pencils or Tufts, being, in this State, only the truncated Extremities of small Vessels. When we consider these Circumstances attentively, we find ourselves obliged to return to the small glandular Bodies and Folliculi of *Malpighi*: And, at the same time, we must acknowledge, that *Ruysch's* fine Injections have discover'd these minute Bodies to be of a vascular Texture, the Structure of which we are still ignorant of.

In a Word, *Malpighi* has discover'd the glandular Tubercles and Folliculi, without destroying their natural Connections. *Ruysch* has discover'd a considerable Part of their Structure, by destroying their Connections. We are, therefore, very much beholden to both these illustrious Anatomists; and it is only by joining their Observations to each other, that we can ever be able to form an Idea of the secretory Organs, which will answer all the Phenomena concerning the different Secretions in the human Body.

The infinite Number of these small secretory Clusters strain or filtre the Mass of Blood, carried to them by the numerous Ramifications already mention'd, and separate from it an excessively fine Fluid; the remaining Blood being convey'd back, by the same Number of venous Extremities, into the Sinuses of the Dura Mater; and from thence into the Jugular and Vertebral Veins.

This subtle Fluid, commonly call'd Animal Spirits, Nervous Juice, or Liquor of the Nerves, is continually forced into the Medullary Fibres of the white Portion of the Cerebrum, Cerebellum, Medulla Oblongata, and Medulla Spinalis; and, by the Intervention of these Fibres, supplies and fills the Nerves, which are a Continuation of them.

All the nervous Ropes, as they pass thro' the Foramina of the Cranium and Vertebrae, are accompanied by particular Elongations of the Pia and Dura Mater. Those of the Dura Mater serve them for Vaginae, in their Passage thro' the bony Openings. Those of the Pia Mater not only accompany and invest each nervous Rope, but also form internal Septa between all the Filaments, of which each Rope consists. It is known, from many Experiments, that the Nerves are the primitive or original Organs of all Muscular Motion, and of all Animal Sensation; and that these two Functions depend in general on the Brain; but we are ignorant of the Nature of this Dependence, and of the particular Uses of the medullary Fibres, of the nervous Fluid, and of the membranous Productions which accompany the Nerves.

Neither is there any thing certain in what has been said concerning the Design, or particular Uses, of the superficial Conformation of the Cerebrum and Cerebellum; or of the different Configuration of their Turnings, Circumvolutions, Eminences, Depressions, Expansions, and various Folds. It may be assum'd, in general, that, by this Structure, the Extent of the secretory Organ of the nervous Fluid is increased very considerably,

derably, and the particular Functions of each nervous Rope distinguish'd; and likewise their general and reciprocal Correspondence, both in regard to the Exquifiteness of the Organs of Sensation, and the Activity of the Organs of Motion.

The Falx of the Dura Mater hinders one Portion of the Cerebrum from pressing on the other, when we lie on one Side. The transverse Septum serves for a Tent to the Cerebellum, and defends it from a mortal Compression, which it must otherwise be liable to from the Cerebrum, especially when we walk or jump.

The Septum, and Productions of the Pia Mater, connect and strengthen all the Circumvolutions, Divisions, and Ridges of the Cerebrum and Cerebellum, and sustain, in a general and almost incomprehensible manner, all the Branches and Ramifications of the Blood-vessels, all the medullary Filaments, and all the Elongations and Ropes that depend on these.

A Dissertation on the Anatomy of the Brain, by M. Steno, read in the Assembly held at M. Thevenot's House, in the Year 1668.

Gentlemen,

Instead of promising, that I shall satisfy your Curiosity in what relates to the Anatomy of the Brain, I begin, by publicly and frankly owning, that I know nothing of the Matter. I wish I were the only Person under a Necessity of talking in this manner, because I might, in time, become acquainted with what others know; and it would be a great Blessing to Mankind, if this most delicate Part, which is liable to so many dangerous Diseases, were as well understood as the Generality of Anatomists and Philosophers imagine it to be. In this, few imitate the Sincerity of *Sylvius*, who never talks positively concerning the Brain, tho' he has been at more Pains about it, than any Man that I know. The Number of those who think every thing easy is infinitely the greatest, and they give us the History of the Brain, and Disposition of its Parts, with the same Confidence and Assurance, as if they had been present at the Formation of this surprising Machine, and had been let into all the Designs of the Great Architect. Though the Number of these positive Gentlemen be very great, and though I cannot pretend to answer for the Sentiments of all the rest, I am nevertheless very much convinc'd, that they who search for solid Knowledge, will find nothing satisfactory in all that has been written about the Brain. It is very certain, that it is the principal Organ of the Soul, and the Instrument by which it works very wonderful Effects. The Soul, which imagines it can penetrate into every thing without it, and that nothing in the World can set Bounds to its Knowledge, is nevertheless utterly at a Loss to describe its own Habitation, and is no-where more to seek than at Home. We need only view a Dissection of that large Mass, the Brain, to have Ground to lament our Ignorance. On the very-Surface you see Varieties which deserve your Admiration; but when you would look into its inner Substance, you are utterly in the dark, being able to say nothing more, than that there are two Substances, one greyish, the other white, which last is continuous with the Nerves distributed all over the Body; that the greyish Substance serves in some Places for a Cortex to the White, and that in other Places it separates the white Filaments from each other.

If we are asked what these Substances are, in what manner the Nerves are joined in the white Substance, or how far their Extremities penetrate into it; all we can do is to own our Ignorance, except we are resolv'd to increase the Number of those who prefer the Applause of the Public to Sincerity and Truth. For, to say that the white Substance is only an uniform Body like Wax, without any Art concealed in it, would be to think too meanly of this great Master-piece of Nature. We are sure, that where-ever there are Fibres in the Body, they always observe a certain regular Order, more or less complex, in proportion to the Functions for which they are appointed. If this Substance is every-where fibrous, as it appears in many Places to be, you must own, that these Fibres are disposed in the most artful manner, since all the Diversity of our Sensations and Motions depends upon them. We admire the Contrivance of the Fibres of every Muscle, and ought still more to admire their Disposition in the Brain, where an infinite Number of them, contained in a very small Space, each execute their particular Offices without Confusion or Disorder.

The Ventricles or Cavities of the Brain are no less unknown than its Substance. They who place the animal Spirits there, think they are as much in the right, as they who make them the Receptacles of the Excrements; but they are both equally puzzled, when they are desired to explain the Origin of these Spirits and Excrements. These may come from the Vessels found in these Cavities, as well as from the Substance of the Brain; and it is equally difficult to determine how they get out.

Among those who place the animal Spirits in the Ventricles, some make them pass from the anterior to the posterior Ven-

tricles, there to meet with the Entrances into the Nerves, while others affirm, that these Entrances are in the anterior Ventricles. Some imagine, that the Excrements of the Brain are contained in the Ventricles, because they think they see something like Excrements there; but they own, that there is as ready a Passage for them from the Brain down to the Medulla, as into the Infundibulum; and supposing they go into the Infundibulum, they may be carried from thence into the Sinuses of the Dura Mater; and there is some Reason to believe, that they may have an immediate Passage into the Eyes, Nares, and Mouth.

We are still more uncertain about what relates to the Animal Spirits. Are they Blood, or a particular Substance separated from the Chyle by the Glands of the Mesentery? Or may they not be derived from a lymphatic Serum? Some compare them to Spirit of Wine, and it may be doubted whether they are not the Matter of Light. Our common Dissections cannot clear up any of these Difficulties.

The true Manner of dissecting the Brain is as little known as its Substance. I need not mention the Method of cutting it into Slices, because it is owned by every body, that nothing can be learned that way. The second Method of unfolding all the Plicæ is something more artful; but it only shews us the outer Surface of what we want to know, and even that very imperfectly.

The third Method of unfolding the Plicæ, and separating the two Substances, goes no farther than the Surface of the Medulla. These three Methods have been differently combined; and they may be still more diversify'd, according as they are executed longitudinally, transversely, or in any other manner.

As for my own Part, it is my Opinion, that the true Method of dissecting would be to trace the nervous Filaments through the Substance of the Brain, to see which Way they pass, and where they end; but this Method is accompany'd with so many Difficulties, that I know not whether we may hope ever to see it executed without a particular manner of preparing. The Substance of the Brain is so soft, and the Fibres so tender, that they can hardly be touch'd without breaking. Since, therefore, Anatomy has not hitherto arriv'd to that Degree of Perfection, as to make the true Dissection of the Brain, let us, without flattering ourselves any longer, freely acknowledge our Ignorance, that we may not first deceive ourselves, and others afterwards, by promising to shew them the true Structure of this Organ.

I should tire your Patience instead of entertaining you, were I to mention particularly all the Disputes that have arose about the Brain: Books are but too full of them; and therefore I shall only relate the principal Mistakes which still subsist amongst Anatomists, and which may be corrected by Anatomy; and they may be reduced to these Heads. Some pretend to shew Parts in the Brain as separate, which are only a Continuation of the same Substance; and others would persuade us, that these Parts touch each other without any Connection, though they are visibly joined together by Filaments or Vessels. Some situate the Parts in the manner which is most agreeable to the Systems they have framed, without considering that they are quite otherwise situated by Nature. They shew you the Pia Mater, for Instance, in Places where it never was; and do not see the Dura Mater in Places where it is visible; and in case of Need, they will make the very Substance of the Brain pass for a Membrane.

I have too good an Opinion of Men of Learning in general, to believe that they do this with a Design to deceive others; but the Principles which they have established, and the Method of Dissection to which they have accustomed themselves, oblige them to it. All Anatomists would demonstrate the Parts the same way, if they made use of the same Method; and therefore we ought not to be surpris'd, if their Systems are very ill founded.

The Antients were so far prepossess'd about the Ventricles, as to take the Anterior for the Seat of common Sensation, the Posterior for the Seat of Memory, that the Judgment, which they said was lodg'd in the Middle, might more easily reflect on the Ideas, which came from either Ventricle. I would only ask those who are still of the same Opinion, to give us the Reason why we should believe them; for there is nothing satisfactory in all that has been hitherto said in favour of it; and as that fine arched Cavity of the third Ventricle, where they placed the Throne of Judgment, does not so much as exist, we may easily see what Judgment is to be pronounced on the rest of this System.

Willis is the Author of a very singular Hypothesis. He lodges common Sensation in the Corpora Striata, the Imagination in the Corpus Callosum, and the Memory in the cortical Substance: But without being at Pains to enter into the Detail of his whole Hypothesis, we need only make the following Remarks upon it. He describes the Corpus Striatum, as having two Sorts of Stria, one ascending, the other descending; and yet, if you separate the Cortical from the white Substance, you will perceive, that these Striae are all of the same Nature,

that is, that they are part of the Substance of the Corpus Callosum, which runs toward the Medulla Spinalis, parted into different Lamellæ by the Intervention of the Ash-colour'd Substance.

How can he then be sure, that these three Operations are perform'd in the three Bodies which he pitches upon? Who is able to tell us, whether the nervous Fibres begin in the Corpora Striata; or if they pass through the Corpus Callosum all the Way to the cortical Substance? We know so little of the true Structure of the Corpus Callosum, that a Man of a tolerable Genius may say about it whatever he pleases.

M. *Descartes* knew too well how imperfect an History we have of the human Body, to attempt an Exposition of its true Structure; and accordingly, in his *Traëtatus de Homine*, his Design is only to explain a Machine capable of performing all the Functions done by Man. Some of his Friends have indeed express'd themselves on this Subject differently from him; but it is evident from the Beginning of that Work, that he intended no more than what I have said; and in this Sense, it may justly be said, that M. *Descartes* has gone beyond all the other Philosophers. He is the only Person who has explain'd mechanically all the human Actions, and especially those of the Brain. The other Philosophers describe to us the human Body itself. M. *Descartes* speaks only of a Machine, but in such a manner, as to convince us of the Insufficiency of all that had been said before him, and to teach us a Method of Inquiring into the Uses of the Parts with the same Evidence, with which he demonstrates the Parts of his Machine call'd a Man, which none had done before.

We must not therefore condemn M. *Descartes*, though his System of the Brain should not be found altogether agreeable to Experience. His excellent Genius, which shines no-where more than in his *Traëtatus de Homine*, casts a Veil over the Mistakes of his Hypotheses, especially, since even *Vesalius* himself, and other Anatomists of the first Rank, are not altogether free from such Mistakes. And since we can forgive these great Men their Errors, who pass'd the greatest Part of their Lives in dissecting, why should not *Descartes* meet with the same Indulgence, who has happily employ'd his Time in other Speculations?

The Respect which I and all the World owe to such superior Geniuses, would have inclined me to continue only to admire this Treatise, as containing the Description of a fine Machine invented by the Author, if I had not met with several Persons who would make us believe, that it is a faithful Relation of the most secret Springs of the real human Body. Since these Persons are not convinced by *Sylvius's* repeated Demonstrations, that M. *Descartes's* Descriptions do not agree with what appears in dissecting the human Body, I find myself oblig'd to point out some Parts of his System, without relating the Whole; in which they may see, if they have a Mind to be instructed, the vast Difference there is between *Descartes's* imaginary Machine, and the real Machine of the human Body.

The Glandula Pinealis has lately been the Subject of the greatest Disputes touching the Anatomy of the Brain; but before I enter upon that Matter, or endeavour to determine the Place where it lies, I must first give *Descartes's* own Opinion in his own Words, contain'd in the following Passages.

“The Surface of the Glandula Pinealis has a Relation to the inner Surface of the Brain.

“In the Concavity of the Brain, the Pores are directly opposite to those of the small Gland.

“The Spirits run from all Sides of the Gland into the Concavities of the Brain.

“The Gland may perform its Functions, though it be inclined sometimes to one Side, and sometimes to the other.

“The small Tubes on the Surface of the Concavities are always turned to the Gland, and may easily be turned toward the different Points of this Gland.”

From all these Passages, it is certain, that he believed the Glandula Pinealis to lie entirely in the Cavities of the Brain. And though in some other Places he says, that it is situated at the Entry of these Cavities, yet we are not to think, that this is contrary to what he advances in the Passages here quoted; for as it is but a very small Body, it may lie either at the Entry, or in any other Place of the Cavities, and yet still be within them, which he declares to be his Opinion, in many other Places.

We are now to examine, whether this Opinion be not contrary to Experience. It is very certain, that the Basis of this Gland reaches immediately from the Passage of the third Ventricle to the fourth; but the posterior Part, that is, one Half of the Gland, may evidently be perceiv'd to be altogether without the Cavities, by only removing the Cerebellum, and one or both of the Tubercles of the third Pair, with Dexterity and Care; upon which the posterior Part of the Gland will be brought into View, and yet no Passage will appear, by which the Air, or any other Fluid, can pass into the Ventricles.

To prove that the anterior Part of the Gland is not in the

lateral Cavities, we need only look upon them, after they have been opened either in *Sylvius's* Way, or in that of the Antients; for the Substance of the Brain will always be found to lie between these lateral Cavities and the Gland. The same Thing may be demonstrated without cutting the Substance of the Brain, by separating from its Basis the Part which contains these Cavities; for the Gland will then appear to be so far out of the Cavities, that it can have no manner of Relation to them, being hindered by the Insertions by which this Part is fix'd to the Basis. The Antients knew very well, that the Fornix is not continuous with the Basis of the Brain, but that it forms a third Cavity on its under Side, and by forcing in Air through the Fissure, between the Tubercles of the second Pair, we raise the Fornix, and thus by breaking the Filaments, which connect it to the Basis, a large Cavity is form'd; from whence some have imagined, that when the Spirits swell the Cavities, the Fornix rises, and that all Sides of the Surface of the Gland are turned toward the Cavities.

I say some have imagined this, because though the Fornix be rais'd in the manner already said, only the anterior Surface of the Gland can be turned toward the lateral Cavities; but no Preparation whatever can turn the posterior Surface toward the posterior Ventricles. But if the Brain has suffer'd no Violence, either in opening the Cranium, forcing in Air, or by any other Method, the Cavity of this third Ventricle will be found very narrow at the Middle, and to contain nothing but the great Vein which forms the fourth Sinus, and the glandular Bodies, which accompany this Vein.

I own that behind this Fissure, and immediately below its posterior Opening, there is a Cavity lined on the fore and lateral Parts, by that Part of the Plexus Choroides which runs up toward the fourth Sinus, and at the back Part, clos'd by the Glandula Pinealis, the anterior Portion of which is perfectly continuous; and when the Fornix is remov'd, this Cavity remains entire under the first, in the Shape of a Kind of inverted Horn.

What *Descartes* says, that the Glandula Pinealis may perform its Functions, though it inclines sometimes to one Side, sometimes to another, Experience shews to be groundless; because it is so hedged in between all the Parts of the Brain, and so fix'd to them on all Sides, that it cannot be mov'd in the least without Violence, and without breaking the Fibres by which it is connected. It is easy to shew likewise, that M. *Descartes* has not represented it in its true Situation, which is neither perpendicular, as he represents it, nor inclined forward, as other very great Anatomists believe; but its Point is always turned toward the Cerebellum, and makes nearly half a right Angle with the Basis.

The supposed Connection of this Gland with the Brain, by means of Arteries, is likewise groundless; for the whole Basis of the Gland adheres to the Brain, or rather the Substance of the Gland is continuous with that of the Brain, tho' the contrary be affirm'd by *Descartes*.

The Hypothesis of Arteries meeting round the Gland, and from thence running up to the great Euripus, as it is call'd, is of great Moment in *Descartes's* System, because the Separation and Motion of the Spirits depend upon it. But, if we can believe our Eyes, this is no more than a Collection of Veins from the Corpus Callosum, from the interior Substance of the Brain, from the Plexus Choroides, from different Places of the Basis of the Brain, and from the Gland itself; the Office of which Veins is to carry back the Blood from the Brain to the Heart, and not to bring it from the Heart to the Brain. Some have thought, that M. *Descartes* design'd to carry the Nerves to the Gland; but he never had any such Intention.

Such of M. *Descartes's* Friends who look upon his Man only as a Machine, will be so good as to believe, that I do not here speak against his Machine, the Contrivance of which I have always admired; but as for those who pretend to demonstrate, that M. *Descartes's* Man is made like other Men, Anatomical Observations may easily convince them, that this is a fruitless Attempt. And if they should plead the same Experience on their Side, we may readily answer, that there is nothing more common than not to perceive the Mistakes we commit in dissecting the Brain, as will evidently appear in the Sequel of this Dissertation.

Dissections or Preparations being liable to so many Mistakes, and Anatomists having hitherto too readily form'd Systems, and moulded these soft Parts in the manner that was most agreeable to each, we cannot be surpris'd to find so little Exactness in their Figures. But this Want of Accuracy in the Figures is not owing to bad Dissections only; The Ignorance of Drawers has contributed very much, and the Difficulty of expressing the several Eminences and Depressions of the Parts, and of understanding what the Anatomists principally insist upon, furnishes them with a never-failing Excuse. The best Figures of the Brain are those of *Willis*; but even these contain a great Number of egregious Mistakes, and they want many Things to perfect them. In the third Figure he represents the Superior

Superior or Pineal Gland like a round Ball ; and consequently, according to this Figure, the Apex of that Gland cannot be said to be turn'd either forward or backward. Besides, we see here nothing of the Substance of the Brain on the fore Side of the Gland, and which goes from one Side to the other ; all which the Figure would make us believe to be annihilated. Behind the Gland a Space appears on the Basis of the Brain, between the two Tubercles of the third Pair, which, in the natural State, has a quite different Appearance. The thin Expansion of the white Substance of the Cerebrum, which is continued to the Middle of the Cerebellum, where it is very thick, is quite wanting ; as also the Origin of the Nervi Pathetici, which go out from this Expansion. He likewise represents the second Pair of Tubercles as distinct, which commonly adhere to each other. The under Side of the Fornix appears to be uniform, which is, nevertheless, of an uneven, and very elegant, Structure. When we cut the Corpus Striatum transversely, we see Radii very different from what they are exhibited in *Willis's* eighth Figure. The white Radii appear there to be continuous with the fore Part of the Corpus Striatum, which nevertheless is of an Ash-colour'd Substance, and, as it runs in between the white Radii, does not appear, in that Method of Dissecting, to adhere to any other Body whatever.

In the third Figure the Infundibulum has no Resemblance to Nature. The Nervi Motores Oculorum are strait, and not oblique as they ought to be ; neither do we see the true Origin of the Filaments of which these Nerves are compos'd, from the Basis of the Brain. The Pons Varolii might have been better and more distinctly express'd ; and the anterior Roots of the Fornix are not separated as in the seventh and eighth Figures, but touch each other at the upper Parts, and form an acute Angle. The Line mark'd G. G. G. in the seventh Figure, appears to be a continu'd Line, tho' the Part between the Roots of the Fornix, which is represented, has no Connection with the Extremities ; and, in the same Figure, the Glandula Pinealis is connected to the Substance of the Brain by two Funiculi. I need say nothing of the Figures of *Vesalius*, *Casseri*, &c. for since these, which are the latest and best, are so very imperfect, we may easily imagine how little Regard is to be paid to the others.

I have seen but three Figures of *Varolius*, which express, in a wretched Manner, the best Observations that ever have been publish'd on the Brain. I don't know whether the Figures of the first Edition at *Padua* in 1573. may not be better than those which I have seen publish'd at *Frankfort* in 1591. and again in *Baubin's* Anatomy. Among *Bartholinus's* Figures there are three, which represent the Brain dissected after *Sylvius's* Method ; but the Author himself owns, that they are faulty. But, to pass over many other Mistakes in all these Figures, there is not one amongst them which represents truly the Situation of the Glandula Pinealis, the Duct of the third Ventricle, the Plexus Choroides, the Ramifications of the Veins contain'd in the lateral Cavities, the Distribution of the Arteries, the Concourse of the Veins which form the fourth Sinus, or the numerous glandular Bodies lodg'd there.

From all this you see how the Brain has been hitherto dissected, how little Knowledge has been gain'd from these Methods of Dissection, and how falsely the Figures represent the Parts which they are design'd for. It is easy to conclude from hence, how little Regard is to be paid to the Systems built on these bad Foundations, in framing of which the Authors, by an unaccountable sort of Misfortune common to this with all other Arts, have employ'd obscure Terms, Metaphors, and Comparisons, all of them so ill chosen as to be equally puzzling to those who have made some Progress in this Science, and those who begin to learn it. Besides, the greatest Number of these Terms are so low, and so unworthy of the most noble Part of the Body of Man, that I am at a Loss whether I ought most to wonder at the bad Turn of Thought of those who first made use of them, or at the Indolence of their Successors, who continue still to retain them. What Necessity could there be to employ the Words Nates, Testes, Anus, Vulva, and Penis, which, in their common Signification, have no Relation at all to the Parts express'd by them in the Anatomy of the Brain ? And, accordingly, what one Author calls Nates, another calls Testes, &c.

The third Ventricle is a very equivocal Term. The Antients understood by this Word a Cavity under the Fornix, which they believ'd to be separated from the Basis of the Brain ; and they have represented it with three Legs, that it might support the Brain which lies upon it. *Sylvius* calls the third Ventricle a Canal found in the Substance of the Basis of the Brain, between the Infundibulum and the Passage which goes under the two posterior Pairs of the Tubercles of the Brain, towards the fourth Ventricle. Some Anatomists, having separated the Bodies of this second Pair of Tubercles, take the Space between them, which is owing to their manner of Dissection, for the third Ventricle, which is, consequently, sometimes the Fissure above, and sometimes the Canal below ; and some will have it to be the Space

between the Fissure and Canal, which is likewise owing to the Rupture of the Parts. We have, therefore, three third Ventricles, the second of which alone is the true one ; the first and third arising entirely from the Methods of preparing the Parts. To these a fourth third Ventricle might be added, if the small Fissure under the Fornix could be look'd upon as a Passage between the two anterior Ventricles and the fourth ; but it is so small, and so full of the Vessels and Glands of the Plexus Choroides, that I doubt very much whether there can be any Communication that Way between the anterior and posterior Ventricles, especially since *Sylvius's* third Ventricle is sufficient for that Purpose, and likewise answers the Design so perfectly well, that whatever goes from the lateral to the posterior Ventricle, must first of all fill the Infundibulum and this Canal.

Two Glands are reckon'd to belong to the Brain ; tho' we know not if either of them resembles Glands in any thing more than in Figure ; and even that, when well examin'd, will be found to be different from what it is in the rest. The superior or Pineal Gland is not like a Pine-apple, either in Brutes or in Man ; and it is not known whether the inferior or pituitary Gland acts in any respect on the Pituita.

The Plexus Choroides represents a vascular Texture, in which the Veins are seen very distinct from the Arteries, and the Distribution of each may be traced separately. The Name of Fornix gives the Idea of an arched or vaulted Part, which, however, is not to be found but when look'd for in a proper Manner. The Corpus Callosum, in the common Signification, means the white Substance of the Brain, which comes into View when the two lateral Parts are separated ; but as it entirely resembles the rest of the Substance of the Brain, there can be no Reason for giving a particular Name to one Part of this Substance.

There are but two Ways of coming at the Knowledge of a Machine ; either to be taught the whole Contrivance of the Maker, or to take it quite to Pieces by itself, and as it stands in relation to the rest. These are the only true Ways of learning the Contrivance of any Machine ; but the Generality of Inquirers have thought, that they had better guess at it, than be at any Pains to examine it thoroughly. They have satisfy'd themselves with observing its Motions, and on these Observations they have built Systems which they believ'd to be true, because, by their Help, they imagin'd they could explain all the Effects in different Manners ; and that the Senses alone are capable of informing us whether our Ideas be conformable to Nature. As the Brain is a Machine, we must not flatter ourselves, that we can discover the Contrivance of it by any other means than we made use of for knowing other Machines ; and we have no Way left but to take it to Pieces, and to consider what every Part of it is capable of in a separated and in an united State. In this Search we may truly say, that few Anatomists have discover'd any great Degree of Curiosity. Chymistry has, in all Ages, found both private Men and Princes ready to erect Laboratories ; but few have pursued Anatomy with equal Ardour. This Neglect is not owing to Princes, among whom many have had Curiosity enough for such an important Part of Knowledge, to build magnificent Theatres, which they have often honour'd with their Presence : But the Dissectors, being always willing to appear complete Masters of this Science, never had the Sincerity to own, that any thing still remain'd to be known ; and, to conceal their Ignorance, have contented themselves with demonstrating what was to be found in the Writings of the Antients.

Anatomists might have Reason to blame me, if I did not shew, by a farther Explanation, that they are not so much in the wrong as I seem to insinuate, by saying, that they do not apply themselves sufficiently to anatomical Inquiries. They that study Anatomy are generally either Physicians or Surgeons, who, being both oblig'd to visit their Patients, have too little Time left for Study, after they have attain'd to a tolerable Degree of Reputation. But they ought not to undertake the Cure of a Body, the Make of which they do not know, that is, they ought not to endeavour to rectify a Machine, till they are previously acquainted with its Nature. Others, who do not visit sick Persons, but have no other Business but that of teaching Anatomy in public Schools, do not look upon themselves as more oblig'd to pursue anatomical Inquiries than the practising Physicians and Surgeons. The Design of their Profession is to teach to those who are to practise Physick and Surgery, the Descriptions left us by the Antients of the Structure of the human Body ; and when they have clearly demonstrated all that is contain'd in the Works of the Antients, and their Hearers have as distinctly understood them, they both imagine, that they have done their Duty. The Bounds of those different Professions of Teaching and Practising have been so very ill settled, that the true Knowledge of the human Machine, though the most necessary Branch, is neglected, as belonging neither to the Anatomist, Physician, nor Surgeon.

To make the necessary Inquiries for the Discovery of Truth, a Man's whole Time must be taken up ; and Professors of Anatomy, who are oblig'd to make public Demonstrations, which employ

employ a great deal of Time and Labour, cannot be proper for this Study, for the Reasons already given, and for the following, which are no less evident.

First, There is so much Time and Application required to examine each Part as it ought, that every thing else must be laid aside, and we must mind nothing but that. Physicians and Surgeons cannot comply with this because of their Practice, nor Professors because of their public Demonstrations. Whole Years may sometimes be necessary to discover what may afterwards be demonstrated to others in the Space of an Hour. I do not question but that *Pecquet* was a great while in carrying the Chyle from the Mesentery to the Subclavian Vein; and perhaps I should not be believ'd, were I to mention what Difficulties I found before I could shew the true Insertion of *Pecquet's* Duct, of which *Bilsius* had given us a Figure; whereas, at present, they may be both prepar'd and demonstrated in half an Hour.

Secondly, Though Anatomists open a thousand Bodies in the Schools, it is by mere Accident, if they discover any thing new. They are oblig'd to demonstrate the Parts as describ'd by the Antients, and, in doing this, it is necessary they should follow a certain Method; whereas Inquiries admit of no settled Method, but must be pursu'd in every manner that can be thought of. In the Schools every thing must be remov'd that lies in the way of the Part which they want to shew; but, in particular Searches, no Part must be cut off till we have first examin'd it; and if any such thing were attempted in public Dissections, the Demonstrator would be look'd upon as ignorant, and the Spectators would be often in the right to complain of Loss of Time, because he would not always be sure to find what he propos'd to shew them. It is evident from these Considerations, that Professors have not hitherto been oblig'd to make Inquiries in Anatomy, and even that it is impossible for them to do it, were they ever so willing; so that it is not their Fault, that greater Progress has not been made in that Science.

Anatomy in general has, we see, been manag'd hitherto with very little Success; and the Inquiries into the Brain have succeeded less than any others, because they have not been made with that Care and Diligence which the Difficulty of the Subject requires. Let us now consider the true Method, and examine if any Person has hitherto found it.

Bilsius apply'd himself to Anatomy, without having study'd the Writings of the Antients; and I make no Question but that he would have made a greater Progress, if, after having learn'd all that is good in these Writings, he had employ'd his Time and Application in making new Discoveries. We must own, that the Works of our Predecessors contain very fine Experiments, which we might still have been ignorant of, if they had not handed them down; and they have sometimes told us Truths, which their Successors, for want of sufficient Application, have not been able to see. It must, however, be own'd, that all that both Antients and Moderns have told us about the Brain is so uncertain, that the Books which contain the Anatomy of this Organ may be said to be chiefly a Collection of Doubts, Disputes, and Controversies; but still a great Advantage may be made of their Labour, and even of their Mistakes. I here speak of the Authors who have dissected; for as for those who only copy the Works of others, the best that can be said of them is, that it may sometimes be proper to read their Books by way of Diversion. But they would have deserv'd a great deal more Commendation, and been more useful to those who dissect, if they had given us only an exact Relation of all that Anatomists have wrote about the Brain; if they had explain'd, according to the Laws of a true Analysis, all the different Ways of accounting for the animal Actions mechanically; or if they had made an exact List of all the Propositions found in these Writings, distinguishing those which are founded on Facts and Experience, from those which contain Reasonings and Conclusions drawn from the former. None of these Methods have hitherto been pursu'd by the Compilers, and, therefore, we must confine ourselves to the original Authors.

The first thing to be consider'd is the History of the Parts; and in this we ought precisely to determine what is true and certain, that we may be able to distinguish that from what is false and uncertain. Neither is it sufficient, that we ourselves are satisfy'd about any thing; the Evidence of our Demonstrations ought to be so clear as to oblige every body else to assent to them; for otherwise the Number of Disputes would rather increase than diminish. Every Anatomist, who dissects the Brain, demonstrates from Experience what he advances. This soft and pliable Substance so readily yields to every Motion of his Hand, that the Parts are imperceptibly form'd in the same manner as he had conceiv'd them before Dissection; while the Spectator, who often sees two contrary Experiments made on the same Part, is either puzzled very much to know which he ought to embrace, or oblig'd to reject both to make himself easy. Therefore, to prevent this Inconvenience, it is absolutely necessary to carry Dissections the Length of a convincing Certainty, which, though very difficult, is very far from being impossible. For I would not have you imagine, from what I have said,

that I believe there is nothing certain in Anatomy, or that all who follow that Study make the Parts appear as they have a mind, without any Danger of being discover'd: You may, indeed, justly doubt if Parts, which are shewn you separated, were ever united; but it would be impossible to shew them united together, if they were not naturally so. To clear up any Doubt that might arise on this Subject, and to be certain whether the Parts which are shewn you were naturally join'd, or not, you need only examine them in their natural State, without using any kind of Violence, but allow those whom you have a mind to convince, to do all that is in their Power to shew, that they are united. We may come at the same Degree of Certainty in other Circumstances, and particularly when we inquire into the Situation of Parts, provided we touch nothing without having first examin'd it, and set down every Moment what we touch. In order to this, we must not only be very attentive to the Part which we examine, but also reflect on all that we did before we reach'd it, to see if these Operations may have chang'd it from its natural State in any respect: For, by often handling more exterior Parts, we may easily affect those which lie within them; and when these come in Sight, we are subject to imagine, that they are naturally such as they then appear, without considering how far we may have alter'd their Situation and Connection with other Parts. The most famous anatomical Dispute, which this Age has produc'd, may serve for an Example of what I say. They who deny the Continuation of the Glandula Pinealis with the Substance of the Brain, and the Adhesion of the Fornix to the Basis of the Brain, would not talk so positively concerning a Matter of Fact, if they did not believe it to be prov'd by incontestable Experiments and Observations. But, in making these Experiments, they must necessarily have forgot the Changes which happen in separating the exterior Parts, and that they destroy all the Connections by which the Dura Mater adheres to the Cranium; and I have often observ'd, that, in raising the superior Part of the Cranium, the Middle of the Dura Mater continu'd still to adhere to it, even after I had open'd it sufficiently to thrust in three Fingers between the separated Parts of the Cranium. Now, how can the Dura Mater be thus rais'd without making the interior Parts, to which it is fix'd, suffer Violence? The Glandula Pinealis adheres to the fourth Sinus, which is connected with the Falx, so that the Dura Mater cannot be rais'd at that Place without affecting the Gland. This Falx receives likewise all the Veins which pass between the Fornix and the Basis of the Brain, and by which these two Parts are connected. There is a pretty strong Connection between the upper Part of the Brain and the Dura Mater; and, when that Membrane is rais'd, the Brain must follow it; and the fourth Sinus, being carry'd upward, breaks the Connection between the Fornix and the Basis. I have many times been deceiv'd about this, when I first began to dissect the Brain; and I us'd to wonder why these Connections were not always sensible: But observing afterwards, in Horses, Sheep, Cats, &c. where that Part of the Dura Mater which separates the Cerebrum from the Cerebellum is ossify'd, that I destroy'd a great many of the inner Parts in extracting this Bone, I began to perceive the Cause of this Mistake, and that it was not an easy Matter to separate the Cranium as it ought. The common Way is to divide the Cranium by a circular Section, to remove the upper Segment; but if this Segment were again divided by a Section perpendicular to the former, it would be much more easily remov'd without doing any Violence to the Brain; for Scissars, Saws, and Forceps, cannot be handled without shaking and disordering the Parts. A small circular Saw might be contriv'd, which would not shake the Parts very much, especially if it were turn'd upon a proper Axis, plac'd between two pointed Pillars. This Saw might likewise be employ'd for several other Purposes in separating the Cranium; but if any Liquor could be discover'd to dissolve or soften the Bones in a small Space of Time, this would be by far the best Way of separating the Cranium.

It is not sufficient to be continually attentive; we must likewise make use of different Methods of Dissection, which are so many different Proofs of the Truth of our Operations, in order to satisfy ourselves, and to convince others.

This will appear a very strange Doctrine to those who believe, that there are stated Laws for the Dissection of every Part, and that the anatomical Administrations, taught us by the Antients, ought to be inviolably observ'd, without any Change or Addition. I own, that the Antients might have given us unalterable Rules for the Dissection of each Part, had they been sufficiently acquainted with them themselves; but as they certainly knew less about many Parts than we do, they were, at least, as unfit as we are to prescribe Rules, which can never be fix'd or constant till more Discoveries have been made. It will here be objected, that some Method must be follow'd in dissecting the Parts already known. This I readily grant, and also, that the Method of the Antients is to be made use of till a better is found out; but I would not have that Method look'd upon as perfect and unalterable. The principal Reason why a great many Anatomists

tomists have remain'd in their Mistakes, and why they have gone no greater a Length than the Antients in Dissection, is, because they believe, that every thing has been already taken notice of, and that there is nothing left for the Moderns to do; and as they have look'd upon the antient Laws as inviolable Rules in Dissection, they spent their whole Lives in demonstrating the same Parts in the same Manner; whereas Anatomy ought to be confin'd by no Rules, every new Dissection requiring a different Method. The Advantage of proceeding in this manner is, that if we miss of new Discoveries, we are, at least, put in a Condition to find out any Mistakes which may have happen'd in former Dissections, especially in controverted Points, in which the Spectators ought to have the Liberty of prescribing the Rules of Dissection.

This Method of Dissection makes, indeed, but a very small Shew, and a Man cannot well display his Learning at the same time that he acknowledges his Ignorance; but, as for my own Part, I much rather chuse to own what I do not know, than to impose upon my Readers antient Opinions, which will, some time or other, be demonstrated to be false. We have seen great Anatomists expos'd to this Mortification; and we still see many who believe, that more Regard will be paid to their Stiffness and Positiveness in Opinion, than to ocular Demonstration. I wish these Gentlemen much Joy of their Self-conceit, while I endeavour to follow the Laws of Philosophy, by which we are taught to search after Truth in so cautious a manner, as never to believe we have found it, till it brings Demonstration along with it.

I cannot prove to you the Necessity of often changing the Methods of Dissection better than by the two following Examples. It is a confirm'd Experiment, that, by blowing into the Beginning of the Fissure under the Fornix, the Fornix is separated from the Basis, and a considerable Cavity left between them; and the same thing happens when we separate the Cranium with Violence, as I have already said. This is so evident, that both the Dissector and the Spectators are fully convinc'd of it; but if any Person should still be in Doubt, there is no other Way to clear it up but to endeavour to demonstrate this Cavity in another manner: For, if it be natural, we must always find it the same, in whatever manner we look for it; but if, by any other Method, we find, that it is wanting, and that the Parts between which it ought to lie are connected together, without leaving any void Space between them, you ought, from that Moment, to be convinc'd of the Falsity of the former Demonstration, and that it was the Force of the Air to which the Appearance of a Cavity was owing.

If the Brain is dissected according to the Method of *Varolius* or *Willis*, after having taken it out of the Cranium, you will commonly see the second Pair of Tubercles separated at the Middle of that white Substance which lies before the Glandula Pinealis, and which is very often broken. When we make the Dissection, leaving the Brain in the Cranium, we see both the Tubercles and the white Substance entire; and then we see plainly, that the Cause of the first Mistake was owing to the Weight of the lateral Parts, which break those in the Middle.

Having made a true and exact Plan of the Parts of the Brain, having observ'd the Mistakes, and the Causes of the Mistakes, and having settled the true Method of demonstrating these Parts, with all the necessary Precautions, the next Step is to express, by good Figures, all that we have discover'd; for we had better be without Figures than not have them true and faithful. When we cannot have recourse to the Originals, the Representation serves to keep us in mind of them; and many Persons never have an Opportunity of seeing the Parts in any other Way, their Aversion to Blood hindering them from satisfying their Curiosity by examining dead Bodies; and, therefore, if the Figures are not true, they give false Ideas to those who would learn Anatomy by their Help, and puzzle others, who make use of them only to refresh their Memory.

We ought, therefore, to leave nothing undone to procure exact Figures, in order to which a good Drawer is as necessary as a good Anatomist. We must likewise apply ourselves very particularly to see in what manner we ought to dissect and dispose the Parts, so as to exhibit all that is to be seen in the Brain, there being Difficulties peculiar to this Organ. The other Parts require only a Preparation to complete the Figures we design; whereas the Brain, never so well prepar'd, subsides before the Figure can be taken; and we must have several fresh Subjects, before one Figure can be finish'd. To this, perhaps, it is owing, that no anatomical Figures are so imperfect as those of the Brain.

I have hitherto said nothing of the Uses of the Parts, nor of the animal Actions, as they are call'd, because it is impossible to explain the Movements of a Machine, till we know the Contrivance of its Parts. A reasonable Man must, in his own Mind, laugh at those positive Anatomists, who, having made a long Harangue about the Use of Parts, the Structure of which is altogether unknown to them, give this as the only Reason of all they advance, that God and Nature do nothing in vain. They

deceive themselves in the Application of this general Maxim; and the Part which they rashly judge to have been made by God for one End, is afterwards discover'd to have been made for another. We had, therefore, much better own our Ignorance, be more reserv'd in our Decisions, and not undertake, upon such slight Conjectures, to explain Matters which are, in their own Nature, so difficult.

All that I have hitherto mention'd is but a very small Part of what ought to be done, in order to acquire the Knowledge of the Brain. We ought, moreover, to examine the Heads of all Animals, and in all the different States of each Animal. In the Fœtus of Animals we see how the Brain is gradually form'd; and what could not be seen in a sound healthy Brain, may, perhaps, be discover'd in one that is diseas'd.

In living Animals we ought to consider every thing that may cause the least Alteration in the Actions of the Brain, whether the Causes be external, as from Liquors, Wounds, or Medicines; or internal, as a great Number of Diseases reckon'd up by Physicians. There is likewise this Advantage attending the Dissection of the Brains of Animals, that we may manage them as we please. We may learn to trepan, or to perform any other Chirurgical Operation, upon them; we may examine whether the Brain has any Motion in these Operations, and whether the Application of any Medicines to the Dura Mater, or to the Substance or Ventricles of the Brain, may not produce some particular Effects.

We might likewise make different Trials without opening the Cranium, by applying Medicines externally, by mixing them with the Food, and by Injections into the Vessels, in order to discover what disturbs the animal Actions, and what is most proper to restore them when disordered.

The Brain is different in different Animals; and this is another Reason why we should examine them all. The Brains of Birds and Fishes are not at all like that of Man; and even in Animals where there is the greatest Likeness to the human Brain, I have always found a very great Variety. Whatever this Difference be, it may always afford us some new Light, and teach us what it is absolutely necessary we should know. In some Animals the Fibres are more easily seen than in Men; and the Parts which in the human Brain are mixed and joined together, are sometimes distinct and separate in Animals; and we often meet with the Substance more or less solid, and the Size and Situation different.

I need not insist any longer on this Subject, because I believe we are all convinced, that we are indebted to the Dissection of Animals for almost all the new Discoveries of this Age; and that there are many Parts which would never have been found in the human Brain, if they had not first been observed in Animals.

What I have hitherto said concerning the Insufficiency of all the Systems of the Brain, concerning the want of a true Method in dissecting it, concerning the infinite Number of Inquiries that ought to be made about it in Man, and in Brutes, in all their different States, concerning the Barrenness of all the Writers on this Subject, and concerning the Precautions that must be used in handling these tender Parts, ought certainly to undeceive those who satisfy themselves with what they find in the Books of the Antients. We must always remain in Ignorance, if we sit down with what the Antients have taught us, and if Men capable of such Inquiries do not contribute their Labour, Industry, and Study, in order to arrive at the Knowledge of Truth, which is the principal Aim of all who search for it sincerely. *Winflow's Anatomy.*

Before we proceed to consider the Brain as an Aliment, and as a Medicine, we must observe, that the Subject of our Discourse is that soft whitish Substance which is contained within the Cranium, and has some Resemblance to Marrow, comprehending under the Term *Brain* both the fore Part call'd by Anatomists, in a strict Sense, *Cerebrum*; and the hinder Part, which goes under the proper Name of *Cerebellum*. One Thing more we would premise, as worthy of Observation, which is, that by Authors, who trouble not themselves with anatomical Terms of Art, the Brain, that is, the *Cerebrum* and *Cerebellum* in Conjunction, is call'd *Cerebellum*, when they speak of the Brains of small Animals, as Birds, or little Pigs.

Athenæus, *Lib. 2. Cap. 24.* writes, that the Antients abstain'd from eating Brains out of a religious Motive, because it was situated in the Head, the Seat of almost all the Senses. And *Plutarch*, *Sympos. 8. Probl. 9.* reckons the Brain among such Things as were neither to be eaten nor tasted at first, but which afterwards was esteem'd a great Delicacy in Food. *Bulenger, de Conviviis, Lib. 2. Cap. 24.* tells us, that the Brains of Birds cleansed from the Fibres, and drawn out thro' the Neck, were in high Esteem. And *Apicius*, who was so famous for his Proficiency in the Art of gratifying the Appetite, *Lib. 2. Cap. 1.* where he treats of making Sausages, prescribes boiled Brains for an Ingredient; and in *Lib. 4. Cap. 2.* you have an Account of the Brains which were to enter the Composition of the several Dishes. In our Times the

Brains of some Animals, as of Calves, Kids, and Hares, are reckon'd among the greatest Dainties. But they are not approv'd by Physicians, who regard them as a pituitous kind of Food, of gross and vitiated Juice, difficult of Concoction, noxious to the Stomach, and exciting a Nausea; but if they are well boiled, they afford abundance of Nutriment. The wisest Way therefore is wholly to abstain from them, unless you have very strong Viscera, or season them with Spices, to promote Concoction. There is a fat and unctuous Humidity in Brains, which gives the Stomach a great deal of Trouble to digest it; for which Reason the drier the Brain of Animals is found to be, the better it is accounted, as the Brains of Birds, if compar'd with those of other Creatures; and those of Mountain-birds, in Comparison of those of Water-fowl. They are supposed to generate good Blood, and by that means to provoke venereal Inclinations. *Vitellius*, that eminent Glutton, had the Brains of Pheasants and Peacocks served up in his famous, noble, and costly Dish; and *Heliogabalus* distributed six hundred Heads of Ostriches to his Guests, that they might pick out the Brains, and eat them. The Brains of Hens and Capons are now eaten; and some commend the Brain of Sparrows as an Incentive to Venery. *Ludovici Nonni Dieteticum*, L. 2. C. 36. *Averrhoes* and *Rhazes* affirm, that the human Brain is more effectually strengthened and corroborated by eating the Brains of Animals, than by the Use of any other Substance, because similar things corroborate each other. Hence *Forestus*, in his *Observat. Med.* L. 9. Obs. 32. *Schol.* orders Patients who have receiv'd Flows on the Head, attended with a Discharge of Blood from the Ears and Nostrils, to eat the Brains of Hens and castrated Kids. Various Medicinal Virtues are by different Authors ascrib'd to the Brains of particular Animals. The Brain, for Instance, of a Hare boil'd, triturated, and eaten, is said to be beneficial in the difficult and uneasy Dentition of Children; and some affirm, that, when chew'd, it proves serviceable in Tremors. *Dioscorides* affirms, that the Brain of a Cock, drank in Wine, is an effectual Medicine against venomous Bites, and that it checks Eruptions of Blood from the Membranes of the Brain. The Brain of a Camel, according to *Galen*, when dry'd and drank in Vinegar, cures epileptic Patients. The Brain of a Weasle is said to produce the same Effect; and that of Swallows, mixed with Honey, is by some said to be an effectual Medicine in Cataracts. The Brain of a Sheep, prepared in the same manner, affords a surprising Relief in the difficult Dentition of Children, according to *Paulus Aegineta*, in the third Chapter of his seventh Book. According to *Josephus Lanzoni*, the Brain of a Cat is class'd among Poisons, because, when eaten, it excites a Vertigo, Stupidity, and sometimes Madness. As to the particular Virtues belonging to the Brains of particular Animals, they are specified under the respective Names of the Animals themselves. But we shall here consider the Medicinal Use and Virtues of the human Brain. According, therefore, to *Ettmuller*, the human Brain is an infallible Specific in Apoplexies and Epilepsies. When subjected to Distillation, it yields a large Quantity of Water and Oil. But because it has an empyreumatic Smell, when distil'd by the Retort, it is better first to distil it in *Balneo Marie*, and afterwards to express the Oil from the remaining Mass. This Oil is an excellent Analeptic; and the Water obtain'd in this manner is by *Bartholæus* highly commended against Loss of Memory; for it is of a highly cephalic and anodyne Quality; for which Reason it is an excellent Remedy, when mix'd with Oil, for anointing contracted Tendons and Nerves. This Water will be still so much the better, if it is distil'd with aromatic and cephalic Flowers. The human Brain, of itself, generally yields but a small Quantity of Spirit. But if it is cut into Pieces, and kept till, in consequence of a commenc'd putrefactory Motion, its Oil is resolv'd, and if Spirit of Lilies of the Valley be added to it, then subjected to Distillation, and rectified, it yields an urinous and oleous Spirit, of singular Service in Epilepsies, and Loss of Memory. Hence 'tis obvious, why *Schroder* gives the Title of *Aqua Antiepileptica* to that distil'd from the human Brain, with the Water of Lilies of the Valley, Lavender, Primroses, and Malmsey-wine; and why the same Author dignifies with the Name of an excellent Antiepileptic, the Oil distil'd by a Glass Retort in a Sand-heat, from the Substance of the Brain, mixed with common Salt. The same Author gives the Title of *Aqua Aurea* to a Spirit of the human Brain, prepar'd of the Brain of a sound and young Man, who dies a violent Death, together with all its Membranes, Arteries, and Veins, as also the whole spinal Marrow, shaken together, with the cephalic Waters of the Lime, Piony, Betony, black Cherries, Lavender, and Lilies of the Valley. It is to stand in Infusion for some time, and then to be subjected to repeated Distillations; and the elixiated Sale prepar'd of the calcin'd *Væces* is to be added to it. Its Dose for an Epilepsy is, according to *Hartman*, from one Scruple to four. When subjected to a chymical Analysis, the human Brain yields much the same Substances as are obtain'd from other Parts of Animals, when treated in the same

manner, which are possess'd of the same Virtues with other volatile urinous Salts. But I leave it to be determin'd by others, whether the Opinion of the antiepileptic Virtues of the Brain is not founded upon Superstition, because the Spirits are said to be generated in the Brain.

CEREFATIO seems to import the same as CERATIO.

CEREFOLIUM. The same as CHÆREFOLIUM, Cher-vil, which see.

CEREIBA *Brasilensibus*, *Marcgrav.* *Mangue seu Mangles prima Species*, *Pison.* *Arbor Brasiliana foliis salicis, in quibus sal concrevit, floribus tetrapetalis*, *Raii.*

A small Tree, which grows in *Brasil*, like a Willow. What is remarkable in it is, that when the Sun shines upon it, a sort of Salt concretes upon the Leaves, which, during the Night, and in cloudy Weather, dissolves into a Dew. I find no Medicinal Virtues attributed to it.

CEREIBUNA, *Mangue*, 2 Species, *Pison.* Another Species of the preceding Plant, not distinguish'd for any Use in Medicine.

CERELÆUM, *κηρέλαιον*. The same as *Ceratum*; but in some modern Authors it imports the Oil of Wax, or *Butyrum Cerae*, describ'd under the Article CERA. *Galen* distinguishes betwixt the Cerate and the Cerelæum, informing us, that the *Cerelæum* and *Acopon* are the most liquid of any Compositions of this Kind, and next to these the Cerate.

CEREVISIA. Drink made of any sort of Corn.

CEREUS. The Torch-thistle.

The Root is perennial, small in respect of the Plant, and abounding with Fibrils. The Plant has no Leaves, is thorny, and angulous; its Stalk is either strait or inflected, continuous, or articulated. The Angles of the Alæ are set with Thorns, which proceed like Rays from one Centre, resembling Stars. The innermost Part of the Stalk is of a ligneous Substance; the outer Part is white, fungous, and cover'd with a coriaceous Membrane. The Calyx is long, squamous, and has its upper Part furnished with very long Rays, surrounding the Summit of the Ovarium. The Flower at the End of the Fruit consists of very numerous Petals, narrow below, and spreading above; and is adorn'd with many Stamina, and a beautiful Pointal. The Ovarium at the End of a Pedicle makes the Body of the Calyx, is furnished with a very beautiful Tube, and becomes a Fruit like that of the prickly Pear-tree, consisting of a soft fleshy Substance, cover'd with a hairy viscid Membrane, and containing a Multitude of Seeds.

Boerhaave mentions thirteen Species of this Plant.

1. *Cereus*; erectus; altissimus; *Syrinamensis*. *Par. Bat.* 116. *Spinis fuscis*, *H. R. D.*

2. *Cereus*; erectus; altissimus; *Syrinamensis*. *Par. Bat.* 116. *Spinis albis*, *H. R. D.*

3. *Cereus*; maximus; fructu spinoso, rubro. *Daduf. Par. Bat.* 113. THE GREATEST TORCH-THISTLE, WITH RED PRICKLY FRUIT.

4. *Cereus*; erectus; fructu rubro, non spinoso. *Par. Bat.* 114.

5. *Cereus*; erectus; fructu rubro, non spinoso; lanuginosus, lanugine flavescens. *Par. Bat.* 115. THE UPRIGHT TORCH-THISTLE, WITH YELLOW DOWN AND RED FRUIT WITHOUT SPINES.

6. *Cereus*; erectus; crassissimus; maximè angulosus; spinis albis, pluribus, longissimis, lanugine flavâ. *H. R. D.* THE LARGEST UPRIGHT TORCH-THISTLE, WITH LARGE ANGLES, AND WHITE SPINES, HAVING A YELLOW DOWN ON THE TOP.

7. *Cereus*; erectus; gracilis; spinosissimus; spinis flavis; polygonus; lanugine alba pallescens. THE LESSER UPRIGHT TORCH-THISTLE, WITH MANY ANGLES, AND YELLOW SPINES, WITH A WHITE DOWN ON THE TOP.

8. *Cereus*; erectus; gracilior; spinosissimus; spinis albis; polygonus. *H. R. D.* THE LESSER UPRIGHT TORCH-THISTLE, WITH WHITE SPINES.

9. *Cereus*; erectus; quadrangulus; costis alarum instar assurgentibus. *Ind.* 181. THE FOUR-CORNER'D UPRIGHT TORCH-THISTLE.

10. *Cereus*; scandens; minor; trigonus; articulatus; fructu suavissimo. *Par. Bat.* 118. THE LESSER TRIANGULAR, CREEPING, JOINTED TORCH-THISTLE, WITH THE SWEETEST FRUIT, COMMONLY CALL'D IN BARBADOS THE TRUE PRICKLY PEAR.

11. *Cereus*; scandens; minor; polygonus; articulatus. *Par. Bat.* 120. THE LESSER CREEPING JOINTED TORCH-THISTLE, WITH MANY ANGLES.

12. *Cereus*; minimus; articulatus; polygonus; spinosus. *H. R. D.* THE LEAST PRICKLY JOINTED TORCH-THISTLE, WITH MANY ANGLES.

13. *Cereus*; erectus; polygonus; spinosus; per intervalla compressus quasi in articulos. *H. R. D.* *Boerhaave's Index alter Plantarum*, Vol. 1.

M. *Jussieu*, in the Memoires of the Royal Academy for 1716. gives a long Account of this Plant.

CERIFICATIO. The same as CERATIO.

CERINTHE, *Honeywort*.

The Characters are ;

The Leaves are glaucous or green ; the Flower monopetalous, Bell-shaped, tubulated, multifid, with its Edges sometimes open, sometimes closed. The Calyx contains a tetraginous Pointal, which becomes a Fruit, consisting of two roundish Shells, divided into two Seed-vessels, inclosing for the most part an oblong Seed. *Boerhaave*, *Index alter*.

Boerhaave takes notice of eight Species of this Plant.

1. *Cerinthe quorundam major, versicolore flore*, *J. B.* 3. 602. *Tourn. Inst.* 80. *Boerb. Ind. A.* 195. *Cerinthe*, *Offic.* *Cerinthe major*, *Ger.* 431. *Emac.* 538. *Raii Hist.* 1. 506. *Cerinthe major flore luteo & rubro*, THE GREATER YELLOW AND RED HONEYWORT, *Park. Theat.* 520. *Cerinthe veteribus*, *Cerinthe quorundam*, *Chab.* 520. *Cerinthe, seu Cynoglossum montanum majus*, *C. B. Pin.* 258. *Hist. Oxon.* 3. 445. HONEYWORT.

Dale says, that nothing certain is related with respect to the Virtues of this Plant.

2. *Cerinthe ; quorundam ; major ; flore ex rubro-purpureo-scence*, *J. B.* 3. 603. *Clus. H.* 168. THE LARGE HONEYWORT, WITH REDDISH PURPLE FLOWERS.

3. *Cerinthe ; quorundam ; major ; spinoso folio ; flavo flore*, *J. B.* 3. 602. THE LARGER HONEYWORT, WITH PRICKLY LEAVES, AND YELLOW FLOWERS.

4. *Cerinthe ; quorundam ; minor ; flavo flore*, *J. B.* 3. 603. *Clus. H.* 168. THE LESSER HONEYWORT, WITH YELLOW FLOWERS.

5. *Cerinthe ; flore versicolore ex luteo & albo*, *a.*

6. *Cerinthe ; flore versicolore ex albo & rubro*, *a.* HONEYWORT, WITH RED AND WHITE PARTY-COLOUR'D FLOWERS.

7. *Cerinthe ; flore versicolore ex albo & purpureo*, *a.* HONEYWORT, WITH PURPLE AND WHITE PARTY-COLOUR'D FLOWERS.

8. *Cerinthe ; folio non maculato, viridi*, *C. B. P.* 258. HONEYWORT, WITH DEEP GREEN LEAVES, WITHOUT SPOTS.

CERINTHOIDES.

The Characters are ;

The Leaves are glaucous and smooth ; the Calyx consists of one Leaf, is tubulated, pentagonal, divided into five Lobes ; the Flowers are small, tubulous, quinquefid, not stellated ; the Seeds are smooth.

Cerinthoides ; argentea ; flore pulchre cœruleo, *Buglossum maritimum incanum, flore cœruleo*, *H. L. T.* 135. *Cynoglossum, maritimum, procumbens, læve, purpureo-cœruleum*, *Flor.* 2. 62. *Cynoglossum, procumbens, glaucophyllum, maritimum, nostras, floribus purpureo-cœruleis, seminibus lævibus*, *Plukn. T.* 172. *Fig.* 3. *Cynoglossum, perenne, maritimum, procumbens, foliis glaucis, brevioribus*, *M. H.* 3. 450. *Echium maritimum*, *Phytol. Britann. Raii Synops.* 120. *H. Boerhaave's Index alter Plantarum*.

CERIO. A Disease of the Head, call'd *Favus*. See *ACHOR*.

CERION, *κηρίον*. Honey-comb. *Hippocrates*, in many Places, recommends a Decoction of Honey-combs with Water, as a proper Drink in Fevers. It also signifies that Disorder which the *Latins* call *Favus*. See *ACHOR*. *Ceria*, or *Ceria*, also signifies flat Worms bred in the Intestines.

CERITUS or CERRITUS, mad, enthusiastic, from the Goddess *Ceres*, who was suppos'd to affect People in this manner. It may be translated, drunk with Malt Liquor.

CERNUA, *ὀρεός*. A kind of Fish mention'd by *Galen*. It is not certain to what sort of Fish this Name belongs, tho' said by some to be the Ruff.

CEROBER. Water. *Rulandus*.

CEROMA, *κήρωμα*. A Cerate. See *CERATUM*.

CERONEUM. A Cerate. See *Blancard*.

CEROPISSUS, *κηρόπιστος*. A Plaster made of Pitch and Wax.

Of this sort of Plaster the Antients made their *Dropaces* ; it was usual with them to spread a certain Quantity of this Plaster on Cloth or Leather, and apply it to some Part of the Body, and then take it or pull it off again, and apply it afresh, frequently renewing the Application and Removal of the same, in order to induce a Redness on the Part, with an Intent to attract the Humours, or the Juices which serve to nourish the Part, outward, or to open the Pores. To render this Plaster the more efficacious, they sometimes added to it acrimonious Powders, as of Pellitory of Spain, Pepper, Salt, or Sulphur ; the Dropax was also used to make the Hair fall off, or to pull it off from any Part.

CEROTUM. The same as *CERATUM*.

CERRUS. The same as *Ægilops*, or Holm-oak. See *ÆGILOPS*.

CERVARIA. A Name for the *SESELI ÆTHIOPICUM*, *Blancard*.

CERVICALIS. Belonging to the Neck. The Veins and Arteries of the fore Part of the Neck are distinguish'd by this Epithet.

CERVICARIA. Throatwort. See *CAMPANULA*.

CERVICULÆ *Spiritus* is, according to *Rulandus*, the Spirit of the Bone of the Stag's Heart.

CERVIX. The Neck, that Part of the Body which is situated betwixt the Head and Breast. But it is apply'd figuratively to other Parts. Thus there is the Neck of the Bladder, and the Neck of the Uterus.

The Neck in general is divided into the anterior Part or Throat, and posterior Part or Nape. The Throat begins by an Eminence, and terminates by a Fossula. The Nape begins by a Fossula, which, as it descends, is gradually lost. The Neck contains the *Larynx*, a Part of the *Trachea Arteria*, the *Pharynx*, a Part of the *Oesophagus*, the *Musculi Cutanei*, *Sterno-mastoidæi*, *Sterno-hyoidæi*, *Thyro-hyoidæi*, *Omo-hyoidæi*, *Splenicus*, *Complexus*, the *Musculi Vertebrales*, which lie upon the first seven Vertebrae, and a Portion of the *Medulla Spinalis*.

The Arteries which go to the Neck are these :

Arteriæ Carotides, in general.

Arteriæ Carotides externæ.

Arteriæ Carotides internæ.

Arteriæ Vertebrales.

Arteriæ Cervicales.

The Veins belonging to the Neck are these :

Venæ Jugulares, in general.

Venæ Jugulares externæ.

Venæ Jugulares internæ.

Venæ Cervicales.

Venæ Vertebrales.

The Nerves distributed to the Neck are these :

Nervi Sympathetici minimi, or the Portio Dura of the Auditory Nerves.

Nervi Sympathetici medii, the Eighth Pair.

Nervi Accessorii Octavi Paris.

The Ninth Pair.

Nervi Suboccipitales, or the Tenth Pair.

The Seven Cervical Pairs.

Nervi Sympathetici Maximi.

Winslow's Anatomy.

With respect to the Neck, two Things come under our present Consideration. The first is the wry Neck ; the second, Wounds in this Part.

There are sufficient Instances of Persons who have their Neck bent in such a manner, as to make them incline their Head to the Right or Left Side (see *Tab.* 42. *Fig.* 12.). This Disorder is by *Tulpius*, perhaps in Imitation of *Harace's Stes Capite obliqua*, called *Caput obliquum*, and is since called so by others. This remarkable Bleimish or Defect may be brought with a Child into the World, or it may proceed from other Causes ; when it is born with the Child, it seems hardly possible to be cur'd, because the Vertebrae of the Neck are in that Case either incurvated by Nature, or else, by their long perverted Situation, are by degrees distorted so much, as to admit very little Hopes of a Cure. And therefore we have the more Reason to be surpris'd at those extraordinary Cures, which *Tulpius*, *Meckren*, and *Roonhuysen*, as they themselves assure us, have perform'd upon young Persons of twelve, sixteen, eighteen, and even twenty-three Years of Age, who were born with wry Necks, and yet had them, after so long a Space of Time, restor'd to their just and natural Position. But when such a Misfortune happens after Nativity, in Puberty, or in adult Age, it then proceeds either from a Burn in the Neck, and too great a Constriction of the Skin on either Side, or from a spasmodic and strong Contraction of one of the mastoid Muscles, represented (*Tab.* 42. *Fig.* 12. A. A.) which, by little and little, becomes dry and indurated ; or it may be owing to a preternatural Relaxation of one of those Muscles, in consequence of which, it will be extremely difficult to prevent the stronger Antagonist Muscle from contracting the Head and Neck to the opposite Side ; or lastly, according to the Opinion of *Roonhuysen*, it may proceed from some preternatural Ligament drawing the Head downwards. If, then, this Distortion or Wryness of the Neck be occasioned by any or either of these Causes, it ought by no means to be look'd upon as desperato, and absolutely incurable, especially if it be of no long Standing, and in a young Subject.

The Method of Cure is as follows : If the Disorders be recent, and occasion'd by corrupt or superfluous Humours, commonly call'd *Defluxions* or *Catarrhs*, Heat, and mild Sudorifics, are generally very serviceable. If it proceeds from other Causes, as particularly the Contraction of a Muscle, or the Constriction

Constriction of the Skin by a Burn, we must endeavour by the frequent Use of Fomentations and Ointments, with emollient Oils and Plaisters, to mollify and relax by little and little the contracted Parts, while the Head is to be held inclined to the opposite Side by a convenient Bandage. *Nuck* and *Solingen* recommend the Use of a proper Instrument, (*Tab. 42. Fig. 13.*) compos'd of a Kind of Steel Arch (B. B.), and a very soft Band or Collar (A.). This Collar is to be put about the wry Neck, and a Cord being put through the Ring (C.), the Patient is to be suspended by it several times in a Day, for a Quarter of an Hour together, or so long as he can conveniently bear it. If these Remedies prove of little Service, which, as we are assur'd by *Tulpius* and *Roonhuysen*, very frequently happens, or if the Disorder be grown too inveterate, we must proceed to the Operation.

If the Disorder then be owing to a Constriction of the Skin from a Burn, it will be necessary to make one, two, or more transverse Incisions in the contracted Parts of the Skin, taking all due Care to avoid wounding the jugular Vein. These Incisions are to be fill'd with Lint, in order to dilate the Skin, and treated with some digestive Ointment, like other Wounds, while Care is to be taken, at every Dressing, to draw the bended Head at a just Distance towards the contrary Side, by a proper Bandage, till the Wounds being fill'd up with new Flesh, the Skin is prolong'd, and the Head by that means acquires an easy and proper Position.

If the Wryness or Distortion of the Neck proceeds from a too great Attraction or Contraction of one of the mastoide Muscles, or some preternatural Ligament, they are to be divided by a transverse Incision, with a crooked Knife, in their lowest Part near the Clavicle or Sternum; but due Care must be taken to avoid every considerable Vein and Artery, the wounding of which might occasion a dangerous Hæmorrhage. To stop the Effusion of Blood, the Wound is immediately to be fill'd with Lint, and afterwards, by means of some digestive Ointment, or Oil of Hypericum, or (Balsam of Copaiva,) which last is recommended by *Roonhuysen*, to be gradually conglutinated with a large Cicatrix. *Tulpius*, *Meekren*, and *Roonhuysen*, give us Relations of Cases which occur'd to them, in which, after cutting the preternatural Ligament or Tendon, the inclin'd Head started back with surprising Celerity, and with a sort of Impetus, into its natural Position. In the Management of the Cure it seems necessary, tho' omitted by the foremention'd Authors, to use a Bandage for holding up the Head, till the Conglutination is perfected, or till the Neck has recover'd its right Situation. They who desire more particular Observations on this Subject, may consult *Tulpius*, especially *Lib. 4. Cap. 58.* *Meekren Cap. 33.* and *Roonhuysen, Observ. 22. and 23.* But the more modern French Surgeons, which seems surprising, mention not a Word neither of this Disease, or its Cure. *Heister, Chirurg. Vol. 2.*

The Operation is thus perform'd, according to *Sharp*.

The Operation of cutting the wry Neck is very uncommon, and is never to be practis'd, but when the Disorder is owing to a Contraction of the mastoide Muscle only, as it can answer no Purpose to set that Muscle free, by dividing it, which is all that is to be done, if the others of the Neck are in the same State, and more especially if it has been of long standing from Infancy, because the Growth of the Vertebrae will have been determined in that Direction, and make it impossible to set the Head upright.

When the Case is fair, the Operation is this. Having laid your Patient on a Table, make a transverse Incision thro' the Skin and Fat, somewhat broader than the Muscle, and about one third of its Length from the Clavicle; then passing the probed Razor with Care underneath the Muscle, draw it out, and cut the Muscle. The great Vessels of the Neck lie underneath, but I think, when we are aware of their Situation, there is no great Danger of wounding them. After the Incision is made, the Wound is to be cram'd with dry Lint, and always dress'd so as to prevent the Extremities of the Muscles from reuniting, to which End they are to be separated from each other as much as possible, by the Assistance of a supporting Bandage for the Head, during the whole Time of the Cure, which will generally be about a Month. *Sharp's Surgery.*

WOUNDS of the NECK.

Wounds in the Neck are certainly no less troublesome and dangerous, than Wounds in the Breast and Abdomen; whence it is surprising, that there should be found, among the Professors of Surgery, some who in their Writings treat not at all, or at least very slightly, of Wounds of this Kind.

There is a great Variety of Wounds in the Neck: Some affect only the outward Skin and Flesh, and are therefore less afflictive and dangerous; but the most terrible, and indeed incurable, Wounds, are those which are inflicted on some of the larger Veins or Arteries, such as the jugular and vertebral Veins, or the Carotides; or where the Aspera Arteria, Fauces, Medulla Spinalis, the Nerves which descend by the Neck, such as the Par Vagus, the Nervi intercostales and diaphragmatici,

receive a Wound; or where several of these Parts happen to be wounded at the same time.

The Nature of a Wound in the Neck, and which are the injur'd Parts, may be discover'd by the Eye, or by considering the Place where the Wound was inflicted, with the Assistance of Anatomy, or by observing the consequent Symptoms. From this Diagnostic the Prognostic will easily and naturally follow; for whoever is thoroughly acquainted with the Condition of a Wound, will find no great Difficulty in determining the Event of it. When therefore only the Skin and Flesh are injur'd, we have no Reason to be apprehensive of any ill Consequence; but when the Parts of the Neck are Partakers of the Injury, and have a very considerable Share in the same, there is but too much Reason to be concern'd for the Safety of the Patient, because these Parts are of absolute Necessity to Life itself, tho' even in this Circumstance, where the Wound is very small, it is sometimes known to be cured.

Wounds of the Arteries in this Part are seldom or never cured; for in this Case the Patient usually bleeds to Death, before a Surgeon can be call'd to his Assistance; tho', to speak the Truth, the Presence and Industry of the Surgeon are found to be of little or no Service; for it is extremely difficult to stop the Effusion of Blood in this Part, not only on account of the Largeness of the Arteries here situated, but from the Impossibility of making a Ligature upon the wounded Vessels, strong enough to suppress the vehement Efflux of the Blood.

A Wound of the external Jugular is not attended with much Danger, if a Surgeon be call'd in time; for not only the Hæmorrhage may be stopp'd by a gentle Compression, as appears by the frequent Practice of Blood-letting in this Part, but also a Wound made in that Vein closes up, and is conglutinated in a kind of spontaneous manner. But, on the contrary, Wounds of the internal Jugulars are very dangerous, both on account of their extraordinary Size, which usually exceeds that of a Finger, and also from the Deepness of their Situation, which renders it extremely difficult to make Ligatures upon them. And tho' there be some Surgeons, who, being persuaded by the Force of these Reasons, have presumed to declare all Wounds of the internal Jugulars incurable, I can by no means agree with them, that it is perpetually so. On the contrary, I am of Opinion, that where the Wound in these Veins is not very large, and a Surgeon is ready at hand, before the Patient is too far exhausted and debilitated by the Hæmorrhage, it is not impossible to save Life, and effect a Cure. But after what manner those Kinds of Wounds are to be treated, we shall teach below.

Wounds in the Aspera Arteria are almost all pronounced incurable, or absolutely mortal, by Professors and Writers of Surgery. I am so far from intending to contradict them in this their Sentiment, that I shall rather endeavour to support it in such Cases, where the Aspera Arteria is wholly divided, or is wounded within the Thorax, or, as it usually happens, when the Carotids and Jugulars are also cut through. But, on the other hand, if it be only wounded in the fore Part, and the neighbouring Vessels before-mentioned remain entire, it will admit in good measure of a Cure, as is most certainly evident, from Examples within the Compass of our own Observation, and others every-where to be met with.

The Patient is in a very dangerous Condition when the Oesophagus is much wounded, or entirely divided, because not only the Passage of Aliment is intercepted, but the Part is so situated, that it can scarce be wounded without injuring some of the adjacent Nerves and Arteries; and, besides, the Treatment of such a Wound is commonly very difficult and troublesome to the Surgeon. But when the Oesophagus is the only Subject of the Wound, and the Opening but small, a Cure may doubtless sometimes be performed.

All Wounds of the Medulla Spinalis are extremely dangerous, and principally when they are inflicted about the Neck. It is no Wonder, therefore, that we have scarce an Instance of one recovering from a considerable Wound of this Kind. The Reason of this will readily appear, if we consider, that several Nerves, which are absolutely necessary to the vital Functions, proceed from this Part; that the vertebral Veins and Arteries can hardly avoid being wounded at the same time, and that such Wounds are by their Situation render'd almost incapable of being rightly treated, by conveying the proper Remedies for stopping the Blood, and cleansing the Part. Nor are Wounds of the larger Nerves of the Neck less to be dreaded, because they are seldom or never inflicted without depriving the nobler Parts of the Breast and Abdomen, to which they are assistant, of all Sense and Motion.

The Treatment of Wounds in the Neck differs according to their various Natures. When only the Skin and Flesh are divided, the Cure is to be manag'd after the ordinary way of treating slight Wounds. When the external Jugular is wounded, Application of pretty thick Bollsters, with a Bandage, is generally all that is requir'd; for the same Methods, which we use after Bleeding in that Vein, are sufficient.

If the internal jugular Vein happens to receive a Wound, which is known to be but slight by the moderate Effusion of Blood, the Hæmorrhage may easily be stopt, by filling the Wound with Pledgets of Lint, or the orbicular Fungus, which they call *Crepitus Lupi*, or *Bovist*, laying over them square Bolsters, and securing the Whole with a Bandage drawn as tight as the Situation of the Part will permit. For as an Hæmorrhage is much more easily suppress'd in a Vein than in an Artery, so the principal Part of the Cure in this Case consists in the accurate Compression of the wounded Vessel, which is generally succeeded by a speedy Conglutination. Sometimes it happens, that this Dressing of the Wound, which we have here directed, has no Effect; in this Case the wounded Vein must be compress'd by an Assistant with his Finger, or by a new surgical Instrument, represented in *Tab. 26. Fig. 2.* or some other like it, till the Hæmorrhage be entirely stopt; and this Compression must sometimes be continued for a Day or two. The same Method is to be observ'd for Wounds of the vertebral Veins. The Blood being stopt, the Dressings are not to be remov'd till the third Day, and then a vulnerary Balsam and Plaister may be apply'd to heal the Wound.

When the internal jugular Vein receives a large Wound, the Patient generally dies in a very short time with the Loss of Blood. But if a Surgeon happens to be present, or comes the next Instant, I would advise him immediately to apply Bolsters to the Place, and to compress them with his Finger, and then to enlarge the Wound by Incision upwards lengthwise, till, by Help of a crooked Needle, he can make a strong Ligature upon it; after which he may fill up the Wound, and treat it after the Manner mentioned in the preceding Paragraph. By this means, tho' the Course of the Blood through that Vessel be entirely cut off, yet the Life of the Patient may be saved, as I am satisfy'd from a Multitude of Experiments made upon Dogs, who were able to live without any remarkable Inconvenience after the Tying of their internal jugular Vein; it is better therefore to try this doubtful Remedy than none at all.

A Wound in the carotid Artery is attended with yet greater Danger than one in the internal jugular Vein; but, if a Surgeon be at hand when the Wound is receiv'd, I think he should attempt to cure it by the same Method as the other. The Cure of this Kind of Wound is more likely to succeed in the upper and middle Part of the Artery, than in the lower. But if the Trunk of the Artery be not divided, but only one or two of its Branches near the Head, the Wound is to be fill'd up with Lint, dipt in some styptic Liquor, if you have it ready; and upon this you are to lay Bolsters one above another, increasing in Largeness to the uppermost, securing all with a tight Bandage, and ordering an Assistant to compress the Part for some time with his Hand. By this Method I have successfully stopt a violent Stream of Blood, almost as big as a Finger, flowing from a Branch of the carotid Artery, which I have divided in extirpating very large, tumid, scirrhus, parotid, or submaxillary Glands. But in these Cases it is necessary to be observ'd, that the Dressings are not to be remov'd till the third or fourth Day, in order to avoid a new and violent Hæmorrhage, which otherwise usually happens, as I myself have experienc'd.

As to the Treatment of Wounds in the Aspera Arteria, the Surgeon's principal Care, after cleansing the Wound of the Blood, should be to unite the divided Parts, by means of sticking Plaisters, or, where the Wound is large, by making two Sutures with a crooked Needle. This done, he is to dress the Part with some vulnerary Balsam, sticking Plaisters, and Bolsters, and to secure all with a firm Bandage, advising the Patient to keep his Head always bending forward. By this Method the wounded Part will, very probably, by degrees be conglutinated, especially if the Wound be inflicted by Puncture, or by a cutting Instrument. But if a Piece of the sore Part of the Aspera Arteria be taken off by a Bullet, a Suture then seems improper: Wounds of this Kind, as I have learnt by Observation, are more readily healed and cured by the Use of a digestive Ointment, or vulnerary Balsam, the Head being kept bending forward. If the Aspera Arteria be intirely divided, and the lower Part of it contracts itself, and sinks to such a Depth as that it cannot be laid hold on, and united to the upper Part, the Case is desperate, and Death unavoidable.

When the Oesophagus is wounded, the greatest Part of what the Patient eats or drinks comes out at the Wound, which is often succeeded by the Hiccough and Vomiting. If the Oesophagus be entirely divided, the Patient must die; but where it is only perforated in some Part, the most effectual Method is to dress the Wound with some vulnerary Balsam, and endeavour to unite it by sticking Plaisters, advising the Patient to a strict Abstinence for some Days, or at least to be very sparing of Food, and instead thereof, prescribing nourishing Clysters prepar'd of good Broths and Milk. But when the Necessities of Nature require Nourishment by way of the

VOL. II.

Mouth, the Wound should immediately be well cleans'd afterwards, lest some Reliques of the Food should adhere to the Place, and putrefy, which might be succeeded by bad Symptoms; this done, the Wound is to be bound up again, and treated as before, till it be healed.

If any Part of the Medulla Spinalis happens to be wounded, the safest Method is to dress the Wound with Balsam of Peru, or Essence of Myrrh and Amber, or Spirit of Mastich, or some Medicine of the like Nature, mix'd with Honey of Roses, spread upon Lint, and apply'd warm. The Event must be left to God, and a good Constitution; for slight Wounds in these Parts are now-and-then healed, but large Wounds bring with them inevitable Death.

Wounds of the large Nerves, belonging to the Neck, are almost constantly succeeded by a speedy Death; but where the Wound is but slight, the Cure may probably be best accomplish'd by the same Method, as we prescrib'd for Wounds of the Medulla Spinalis. *Heister, Chirurg.*

CERUMEN. Ear-wax.

The *Cerumen*, or *Alarmorata Aurium* of the Latins, and the *κν-ε-λ-ι-ε*, the *κν-ε-λ-ι-ε*, and the *ω-τ-αν-ρ-υ-π-ο-ς*, correspond to what in English we call the Wax of the Ear, which is that natural Excrement collected in the Meatus Auditorius, and discharg'd from the Glands of these Parts thro' the Membrane which lines them. It is fluid on its first Discharge, but by its Continuance it becomes thicker, more solid, viscid, of the Consistence of Clay, and of a bitter Taste. It is by some rank'd in the Class of Medicines, especially that Species of it which is obtain'd from the human Ears, and which is us'd both internally and externally. Thus *Paulus Aegineta*, in the third Chapter of his seventh Book, informs us, that the Wax of the Ears cures Fissures of the Skin about the Roots of the Nails; and *Pliny*, in the fourth Chapter of his twenty-eighth Book, acquaints us, that the Wax of the Ears cures Bites inflicted by Men; and immediately subjoins, that it cures the Bites of Scorpions and Serpents, if apply'd immediately to the Part affected. *Helmont* affirms, that it affords great Relief in Punctures of the Nerves. *Ettmuller* says, that the same Observation is confirm'd by the Experience of others; he also recommends the Wax of human Ears, as an excellent Vulnerary, either by itself, or in Conjunction with Balsam of Sulphur, or Peruvian Balsam, it laid upon Wounds, especially of the recent Kind, made by Puncture in the nervous Parts. He also affirms, that, in Conjunction with the express'd Oil of Walnuts, it is an excellent Deterger of Wounds; or,

Take of the Wax of the Ear, two Ounces; of Sugar of Lead, one Dram: Mix them up into a Liniment, with a sufficient Quantity of the express'd Oil of Walnuts.

This same Author informs us, that this Wax, when boil'd with express'd Oil of Walnuts, is an excellent vulnerary Balsam for the Cure of recent Wounds. And *Agricola*, in his *Chirurgia parva*, tells us, that he has an Ointment which soon proves highly effectual, and performs surprising Cures in Inflammations, Tumors of the Joints, and Suppurations. The Composition is this following.

Take of the Wax of the Ears, three Drams; of the Sugar of Lead, two Drams; and of the express'd Oil of Hasel, a sufficient Quantity: Mix all together, and if it is wanted of a thicker Consistence, it may be inspissated over the Fire.

Internally half a Dram of the Wax of the Ears, taken in any proper Liquor, is said to be a Specific for the Colic. In the *Eph. N. G. Vol. 2.* we have an Account of an old Printer, who, after having us'd Spectacles for a great while, at last acquir'd a clear Sight, and laid them aside; which happy Change he attributed to his daily anointing the internal *Canthi* of his Eyes, and his Eyelids, with the Wax of the Ears. *Serenus Samonicus* recommends the Wax of Cattles Ears for the Cure of a Furunculus or Boil. The Bitterness of the Wax of the Ears, and its being of such a Consistence, as if it was compos'd of Wax and Oil, are Circumstances which leave us no Reason to doubt of its being of a saponaceous, abstergent, and cleansing Quality, and consequently of a vulnerary Nature. I shall here conclude with the Words of *Pauli*, in his *Dissertatio de Medicamentis e Corpore humano desumptis*. 'Tho', says he, this unusual and nauseous Medicine were of so much Worth and Excellence, that nothing could be objected against it; yet there are many Remedies already approved, and more pleasant in themselves, by which the Intentions, with which this Medicine is prescrib'd, may be equally well answer'd; for who doubts of the salutary Effects produced by *Sperma Ceti* in the Colic? Or who doubts, that the Balsam of *Peru*, or *Capivi*, are excellent Vulneraries? Not to mention other Things exhibited, with greater Applause, by the more cleanly and skillful Physicians. See *AURIS*.

CERUSIANA. The Name of a compound Medicine, mention'd and describ'd by *Galen*, in his *Treatise de Compos. Medicam. S. Loc. L. 7. C. 5.*

CERUSSA, *ῥιμυθιον.* *Dioscorides.*

Cerussa & sandix, Offic. *Cerussa,* Aldrov. Mus. Metall. 164. Worm. 131. Charlt. Foss. 54. Matth. 1351. *Plumbum album, quibusdam.* **CERUSE, WHITE LEAD.** Dale.

It is of a cooling Quality, stops Perspiration, mollifies, fills, and attenuates: It gently represses Excrescences, and induces a Cicatrix; for which Purposes it is made an Ingredient in Cerates, gentle Plaisters, and Troches; but it is of the Number of those Things which are of a deadly Quality. *Dioscorides, Lib. 5. Cap. 103.*

Its Use is only external; being poisonous, internally exhibited. See **PLUMBUM.**

CERUSSEA Urina. White Urine, which looks as if Ceruss had been mix'd with it. *Paracelsus* looks upon it to be a Sign of Death, or of considerable Obstructions in the Liver.

CERVUS. The Stag.

The *Cervus* of the *Latins*, and the *ῥαγος* of the *Greeks*, import what in *English* we call the Stag or Hart, the Male of the red Deer. To give a Description of this Animal, is unnecessary; and, to give its natural History, inconsistent with our Design. We shall, therefore, only consider what Aliments, and what Medicines, are obtain'd from it. The Horns, then, of the Stag or Deer, whilst as yet young, tender, sprouting, and not become hard, are reckon'd a Delicacy by some Persons of a particular Taste. These are prepared in different manners; sometimes boil'd, for Instance, and sometimes cut down into Pieces, and fry'd in a Frying-pan. *Petrus Castellanus*, in his *περιπαγία*, L. 2. Cap. 3. affirms, that a surprising Efficacy is ascrib'd to these Horns against all Kinds of Poison; and he himself does not deny them an alexipharmic Quality, but thinks they do not deserve the Name of an Aliment, because they cannot prove more nutritive than any other Cartilage. But, in my Opinion, *Melchior Sebizi*, in his *Manuale*, is in the right, when he pronounces the Man mistaken, "who judges this a salutary Aliment; for these sprouting Horns are glutinous, thick, tough, viscid, and earthy. Their Smell and Taste also, in some measure, resemble those of Funguses."

The Flesh of this Animal is accounted nearly like Beef; and, according to *Celsus*, in the eighteenth Chapter of his second Book, it is of a highly nourishing Quality. According to *Hippocrates*, in his second Book *de Dieta*, the Flesh of the Hart is of a drying Quality, does not pass easily off by Stool, but provokes Urine. Elsewhere, in his Work *de Morbo Sacro*, he classes the Stag's Flesh among those which excite violent Disorders in the Intestines. *Pliny*, in the thirty-second Chapter of his eighth Book, informs us, that the Flesh of the Stag is so far from generating Fevers, that it prevents them: For, "says he, I know some Women of Distinction, who, habituating themselves to taste it every Morning, have, by that means, lived to a great Age, without the Attacks of Fevers. This they think so much the more effectual and infallible, if the Animal is kill'd only by one Wound." *Johannes Bruyerinus*, in his *Treatise de Re Cibaria*, L. 13. Cap. 23. pronounces this Assertion of *Pliny's* a fatal Mistake; and affirms, that the Flesh of the Stag is not only very hard, and yields bad Juices, but also, that it is of difficult Digestion, and generates black Bile; for which Reason it renders the Bodies of those who eat it disposed not only to violent Fevers, but also to other terrible Disorders; in consequence of which, they who are careful of Health will use it rarely. *Simon Sethi* not only affirms, that the Flesh of Stags yields bad Juices, is of hard Digestion, and generates Melancholy; but also cautions us to abstain from it in the Summer, because these Animals, at that Time, frequently feed upon Vipers and Serpents, and are consequently poisonous, and hurtful to the Constitution. But *Melchior Sebizi*, in his *Treatise de Alimentorum Facultatibus*, informs us, that this Assertion is contrary to Experience; and that their Flesh is better in the Summer than in the Winter, because, in the former Season, they are better nourish'd than in the latter; and that it may be eaten with Safety. It is frequently used in the Entertainments of the Nobility, and Persons of Distinction, who delight in Hunting; especially that of the Calves, which is moister, softer, finer, of a more easy Digestion, of a more agreeable Taste, and not at all unwholesome. Next to the Flesh of these, is that of the Animals when they are three Years of Age. The Part of the Deer principally in Use, among the more delicate People, is that towards the Back and Loins. The Flesh of the castrated Deer, before the Eruption of the Horns, is the best; since it is temperate, both with respect to Heat and Dryness. Some prefer the young Calves, when sucking, to those which are older. The Flesh of the Stag is prepared in various manners; for, according to *Sebizi*, in his *Treatise de Alimentorum Facultatibus*, it is either boil'd or roasted, or put into Pasties, or stew'd. To use the Words of *Castellanus*, in his *περιπαγία*, I can by no means ap-

prove of the Curiosity of some Persons of Distinction, who think young Calves of the red Deer, cut out of the Bellies of their Mothers, a Delicacy; for, in my Opinion, they have too much of a disagreeable Mucor to be eaten, without producing a Loathing; and they abound with a Juice so crude, that they cannot be easily digested, and converted into a salutary Aliment. Besides, the Stag's Flesh, in the Months of *August* and *September*, when the Animal is at Rut, is ungrateful, and smells strong, like that of Goats, as *Aristotle* long ago observed. The Flesh of old Deer is not a laudable Aliment, because it is dry, and of difficult Digestion, creates Obstructions, promotes the Generation of a melancholic Juice, and disposes to Fevers. In weak Constitutions it creates Disorders of the Intestines, because it is of difficult Digestion. But why *Hippocrates* affirm'd, that the Flesh of this Animal provokes Urine, is what cannot be accounted for.

If we consider, that the Food of Deer is only Vegetables and Water, we shall readily perceive, that the Flesh of this Animal cannot be highly alcalescent, unless render'd so by much Exercise and Heat. A Stag which is shot, therefore, must be a less alcalescent Animal, than one which is hunted. It is remarkable, that the Legislator of the *Jews* orders the Throat of a Stag to be cut, that it may bleed sufficiently; probably with a View to lessen the Tendency to an alkaline Putrefaction, which the Flesh of Deer contracts after much Motion.

Many medicinal Preparations are obtain'd from this Animal. Thus, in the Works of the Antients, we read, that almost every Part of it is effectual against Poisons; and the Moderns have generally given into the same Opinion, except with respect to its Tail alone; the Extremity of which, in a particular manner, is accounted poisonous; and, when eaten, is said to excite the most cruel Symptoms, such as intolerable Disorders of the Præcordia, and frequent Faintings, by which it speedily proves fatal to the Patient, unless a Vomiting be quickly excited, and the Theriaca, together with Absorbents, exhibited. But this Opinion, concerning the poisonous Nature of the Tail, seems to have drawn its Origin from an Error of the Antients, who imagin'd, that the Bile of the Stag was lodg'd in its Tail. *Ettmuller*, in his *Opera Medica*, T. 1. thinks the Whole of the Stag is deservedly accounted alexipharmic and diaphoretic; and that all the Preparations of it are possess'd of the same Qualities. *Musitanus*, in his *Pyretologia*, affirms the same thing, in express Words. Hence *Cardan* asserts, that the inspissated Tears of the Stag, when tied to any Part of the Body, prove effectual against Poisons. *Agricola* affirms the same concerning the Tooth of the Stag; but others ascribe this Virtue to the Hoof of one of its Right Feet. According to *Sextus*, a Platonic Philosopher, if a Man is cloath'd with a Stag's Skin, he is Proof against Poison. It is also asserted, in the *Theatrum Sympatheticum*, that the Bone of the Stag's Heart, wore about any Person, defends him against the Bites of venomous Animals. *Baricellus*, in his *Hort. Genial.* declares himself of the same Opinion. *Ælian* also, and *Mizaldus*, affirm, that Serpents never approach the Place where the Fat of the Stag is kept. And *Dioscorides*, in the sixty-ninth Chapter of his second Book, informs us, that those who are anointed with the same Substance have no Reason to dread the Bites of Serpents. The same Author also affirms, in the fifty-second Chapter of the same Book, that Serpents are banish'd by the Smoak of crude Hartshorn. In the thirty-ninth Chapter of the last-quoted Book, he tells us, that those who are bit by Vipers receive Relief by the Penis of the Stag, triturated and drank in Wine. *Guainerius*, after the Exhibition of Bezoar, and Preparations of the Theriaca, orders the Bites or Stings of venomous Animals to be tightly tied up with a Thong of Hart's Skin; for, says he, this Skin is of singular Efficacy against Poisons.

Whether the Accounts relating to the Enmity between the Stag and Serpents are just or fabulous, or whether the Stag, in consequence of its Longevity, is possess'd of any peculiar Virtues for procuring long Life, and preventing Diseases, are Points we shall not take upon us to determine; since we have not the Sanction of Experience to vouch our Assertions in either of the Cases. Forbearing, therefore, to swell the Article with various Conjectures, and the Authorities of the Learned on these Subjects, we shall only consider those Parts of the Animal which have any medicinal Uses ascrib'd to them; omitting, at the same time, their alexipharmic Qualities, of which we have already treated. But, that what follows may be the better understood, we must observe, that the Juices of the Stag, as well as of other Animals, have a Tendency to an alkaline Putrefaction; which is still heighten'd, because, in consequence of their Swiftness, their Bodies are much exercised.

As to the medicinal Virtues ascrib'd to the Tail of this Animal, *Xenophon*, in the fifth Chapter of the nineteenth Book of the *Æconomica*, informs us, that if we anoint the Testicles and Pudenda of any Animal with the Stag's Tail calcin'd, and triturated with Wine, it quickens the Desire of Venery in that Animal; which, again, is allay'd by anointing the same Parts with Oil: And the same Effects are also produced in Men, by these Methods. *Rieger* is of Opinion, that not only the Tail, but

but also any other Part of the Stag, as well as of any other Animal, when not so thoroughly calcin'd as to destroy the whole Oil, in which Case the Ashes are entirely insipid, may, by its Acrimony, irritate the Fibres, and procure that Degree of Rigidity requisite for a due Erection; whilst, at the same time, the Wine, by its stimulating Quality, contributes to the Production of the Effect. The Tail of this Animal is not, however, kept in the Shops.

Johnston, in his *Historia Naturalis de Quadrupedibus*, informs us, that *Rhazes* recommends the Brain of the Stag in Pains of the Hips and Sides; as also for the Cure of Fractures. In consequence of its pinguious and unctuous Nature, it may be proper for external Use, where the Intention is to mollify the Parts. But, as we have great Plenty of such mollifying Medicines, the Brain of this Animal is not kept in the Shops.

Pliny, in the fourteenth Chapter of his twenty-eighth Book, informs us, that the Runnet of the Calf of the red Deer, boil'd with Lentils and Beets, and used as an Aliment, is of singular Service in Disorders of the Intestines. It is also recommended for stopping immoderate Discharges of the Menfes, and resolving coagulated Milk. *Scribonius Largus*, in his *Work de Medicamentorum Compositione*, recommends it against an Epilepsy. It is not, that we know of, used in Medicine at present; and, as it is an acrid stimulating Substance, it can only be properly used in Cafes, where, by its resolvent Quality, it may produce some happy Effects.

They who ascribe medicinal Virtues to the Whole of the Stag, class its Heart among the most considerable and efficacious of the cordial Medicines. But the Preparations from this Part of the Animal are rarely used, because other Medicines, of equal Virtues, are more easily obtain'd.

The Bone of the Stag's Heart is more highly recommended for medicinal Uses than the Heart itself. This Substance, according to *Nesalios*, is nothing but the Tendons of the Muscles of the Heart, about the Origin of the Aorta, and Pulmonary Vein, which in old Harts degenerate, first, into a cartilaginous, and then into a bony Hardness. This Bone seems properly to be situated between the Valves of the Root of the Vena Cava, and the Origin of the Aorta, as it were in the Middle of the Septum. Some affirm, that, in fresh-kill'd Stags, this Substance is soft and flexible, like a Cartilage; but that, when it is for some time exposed to the Air, it assumes the Hardness and Texture of a Bone. These Bones ought to be of a beautiful white Colour, and not too large, lest they should be such as are obtain'd from old Oxen; with Bones of which Kind the genuine Bones of the Stag's Heart are often mix'd. This Bone is recommended against Poisons, and for procuring Longevity. It is reported, that, in consequence of its alexipharmic Quality, it affords an instantaneous Relief to pleuritic Patients, if used frequently thro' the whole Course of the Disorder. The Reason assign'd for this is, that it is impregnated with a pretty large Quantity of volatile Salt, by which it contributes to open the Obstructions of the small Vessels in the Pleura. It is generally thought to be appropriated, in a particular manner, to Disorders of the Heart; for which Reason it is made an Ingredient in Medicines of a cordial and comforting Nature. It is generally recommended as a Specific against Abortion, when exhibited with Grains of Chermes, and in a proper Vehicle. Half a Dram of it is generally exhibited in Powder. *Hildanus* thinks it better when calcin'd, than when crude. It is externally recommended, as an Amulet, in violent Hemorrhages; for the stopping of which it is also put into the Patient's Drink; or the Powder of it is blown into his Nostrils. But as Bones of this Kind are not only found in Stags, but also sometimes in Oxen, and in old Men, *Ettmuller* thinks the particular Virtues, ascrib'd to this Bone, spurious; and imagines, that they have drawn their Origin from a foolish Supposition of the Heart's being the Seat of the Principle of Life, and of its being possess'd of a peculiar Degree of Eminence, above the other Parts, on that account. *Stahl*, in his *Art Sanandi cum Expectatione, Satyra Harveana*, justly observes, that the Bone of the Stag's Heart does not differ from the other Bones of that Animal, in any other respect, than that it is in the singular Number: We may, therefore, justly affirm, that this Bone is possess'd of no higher medicinal Virtues than the Bones and Cartilages of other Animals. Hence, when reduced to a Powder, it may, in consequence of its absorbent Quality, destroy Acidities in the Stomach and Intestines; and even for answering this Intention, according to *Ludovici*, it is so far from surpassing, that, in many Cafes, it does not come up to Crabs-eyes, or calcin'd Hartshorn. They who prepare Jellies from this Bone, obtain a Substance possess'd of the same Virtues with the Jellies obtain'd from the Bones either of the Hart, or of other Animals. If other Ingredients are added, the Effects of the Jelly are to be judged of from the Natures of these Ingredients. The Method of preparing a Jelly from the Bones of the Stag's Heart may be seen in *Schroder's Pharmacopæia*. Patients, therefore, only suffer on account of the Dearness, but not of the Effects, of the Medi-

cine, when the Apothecaries, instead of the Bone of the Stag's Heart, use the Trachea of an Ox in their Compositions, as *Matthiolus ad Dioscor. L. 2. C. 52.* informs us they used to do; or when they substitute in its room the Bones found in the Hearts of Oxen, as *Hildanus* informs us the Apothecaries, for the most part, did; or when, in its stead, they use a pliant flexible Bone, taken from the Head of a Sheep, as *Amatus*, in *Dioscor.* informs us was customary among the *Venetians*.

That the Skin of the Stag is effectual against Poisons, has been already observ'd. It is also recommended against Strangulations of the Uterus. *Joel* affirms, that a Belt, made of the Skin of the Stag, kill'd when copulating with the Female, is found, from Experience, to be possess'd of singular Virtues. When applied to the Loins, it is said infallibly to promote the Expulsion of the Foetus. *Burrhus*, according to *Ettmuller*, recommends Stockings of it against the Gout; and he himself order'd a Coat to be made of it for a certain Prince. The Shavings of this Skin, taken off with a Pumice-stone, and triturated with Vinegar, are said to be proper for anointing an Erysipelas. The same, when put in Beds, is said to be a Remedy for an involuntary Discharge of the Urine. We can see no Reason for extolling the Effects of this Skin so highly; nor can we affirm, that they answer the Expectations of the Patients, since we are persuaded, that the Opinion of these Virtues originally arose from an ill-grounded Notion, that all the Parts of the Stag were of singular Service in Medicine, and useful for many curative Intentions.

The Penis of the Stag, according to *Ettmuller*, is of singular Use in Medicine: But the Stag must be kill'd in the Time of Coition; for, by this means, it is of the greatest Efficacy in stimulating to Venery, when a Dram of it is exhibited in the Form of a Powder, with a poach'd Egg, and a small Quantity of generous Wine. *Selenander* also informs us, that it proves a very powerful Stimulus to Venery. But, if the Stag is kill'd in the Act of Copulation, its Penis is of no Use against Dysentery, but rather proves prejudicial. But if the Stag is kill'd at any other time, its Penis is an excellent Remedy against Dysenteries and Pleurisies, either in the Form of a Powder, or shaved down. The Dose is from half a Dram to a whole Dram, in some Water appropriated to Pleurisies and Dysenteries, adding a little Laudanum Opiatum; or the Shavings of this Penis must be boil'd, and the Decoction given to the Patient; or a Jelly must be prepared from them, after the Exhibition of which the Patient is to expect a Sweat. In the above-mention'd Disorders, when frequently repeated, they are of singular Use; and are very properly added to Antidysenteric Electuaries. The Penis of this Animal, according to *Bartholine*, in his *Historiae Anatomicæ Cent. 6. Hist. 50.* is highly proper against Colics, and hysteric Disorders. Externally, the Penis, reduced to a Powder, and anointed on the Testicles, in Conjunction with Wine, proves a singular Stimulus to Venery. Others commend the Use of it against a Difficulty of discharging the Urine; as also in Discharges of bloody Urine, the Plague, and for promoting Deliveries. When exhibited in Wine, it is said to be good against the Bites of venomous Animals. According to *Welschius*, in his *Hecatoſtea, Obs. 75.* a certain Physician happily cured Dysenteries, and Hemorrhages, only with a Powder, prepared of the Penis and Testicles of this Animal; adding either a little common Sugar, or red Sugar-candy, which takes its Colour from the Sanders used in its Preparation. I am of Opinion, that the Veracity of so great Authors is not to be call'd in Question, provided these Accounts are founded on their own Experience, and not on the Reports of others. But Reason convinces us, that no other medicinal Virtues are to be expected from the Penis of the Stag, than what are owing to the absorbent drying Quality of its Powder, or the mucilaginous and gelatinous Nature of its Decoction; so that a Suspicion remains, that the Effects produced are owing to the Substances taken in Conjunction with this Penis, such as generous Wine, and poach'd Eggs, Things which greatly stimulate to Venery. It is not improbable, that the medicinal Virtues attributed to the Penis of the Stag draw their Origin from the groundless Opinion of the Antients, that the Whole of the Stag was useful for many medicinal Purposes. And as for its proving a Stimulus to Venery, I suspect this Opinion is owing to the salacious and hot Disposition of the Animal.

The Tears of the Stag, which are the Sordes collected in the greater or interior Angle of the Eye, resembling indurated Wax, or rather the indurated Wax of the Ears, and which smell somewhat rank, like the Sweat of the Animal, are recommended for their drying, corroborating, astringent, and diaphoretic Qualities. They are also said to be good against Poisons, and contagious Diseases; and to be proper in difficult Labours, and for expelling the dead Foetus. The Dose is said to be three or four Grains.

According to *Franciscus Joel*, half a Scruple of this Substance, drank in generous Wine, is proper for expelling all Kinds of Poisons by Sweat. *Avanzoar*, a celebrated Arabian Physician,

Physician, in his *Abboneron*, Lib. 1. Tract. 13. C. 6. informs us, that he cured a Jaundice, produced by taking some poisonous Substance, by an Exhibition of the Weight of three Grains of Barley of this Substance, with five Drams of Gourd-water. When worn by way of Amulet, and frequently applied to the Nostrils, it is said to be a *Panacea*, or universal Medicine. At present this Substance is not used for medicinal Purposes; and *Ludovici*, in his *Pharmacopæia*, affirms, that, when exhibited in a large Quantity, its Virtues are not so considerable, as to render so nauseous a Remedy preferable to other more pleasant, and more easily obtain'd, Medicines. The Fable on which the remarkable Virtues, attributed to the Tears of the Stag, are founded, is, by *Avenzoar*, deliver'd in the following Words: "That Species of Bezoar is more genuine and useful than the others, which, in some Parts of the *East*, is produced near the Eyes of the Stag, in the following manner. The large Stags of these Countries sometimes eat Serpents, in order to strengthen themselves; and, before they receive any Injury from them, run to the fresh-water Rivers, into which they plunge themselves, till the Water rises very near their Mouths. This they are taught by Nature. They do not drink any of the Water; for, if they did, they would quickly die: However, they continue in it till their Eyes begin to shed Tears, which become viscid, and coagulated under their Eyelids; and which, in Process of Time, become as large as a Chestnut, or Hazelnut. But, when they perceive the Poison entirely discharg'd, they come out of the Water. These Tears, when indurated like a Stone, fall off by Friction, are afterwards found by Men, and accounted a more perfect and useful Bezoar than any other." Hence we understand the Reason, why these Tears are by some call'd the Stone or Bezoar of the Stag. *Scaliger*, in his *Exercitationes*, relates another Fable; and accounts for the Origin of these Tears from the Longevity of the Animal, in these Words: "Before, says he, a Stag is an hundred Years old, it produces no Tears; but, when it is arrived at this Age, there is form'd, at the Canthus of the Eye, a Substance, which adheres to the Bones, and which is harder than a Horn. Its prominent Part is round, remarkably shining, of a yellow Colour, and mark'd with small black Veins. It is so smooth as almost to escape the Touch; and shinks in such a manner, that it almost appears to move itself. It is a present Remedy against Poisons; and is advantageously exhibited, with a little Wine, to such as are seiz'd with the Plague; and by its means such a Diaphoresis is excited, that one would think the whole Body in Danger of being dissolved." What Kind of Stone the learned Author here describes, we leave others to determine. We shall only observe, that some Men, celebrated for their Learning, have adher'd to one or other of these Opinions above-mention'd, concerning the Production of this Stone. But *Scribonius Largus*, in his *Treatise de Medicamentorum Compositione*, seems to be more in the right, when he calls the Tears of the Stag those rank Sordes, found, when the Animal is taken, in that Corner of the Eye which is next to the Face. These Sordes, he informs us, are gather'd by the Sicilian Huntmen, on account of their Virtues against the Bites of Serpents. The celebrated *Harderus* has discover'd a peculiar Lachrymal Gland in the Stag, which other Animals want. This Gland has no Communication with the *Glandula Innominata*, nor with the common Lachrymal Gland, both of which are found in the Stag. It is situated in the inferior Part of the Orbit, and is furnish'd with a large Number of Vessels. By an excretory Duct, peculiar to itself, it discharges the secreted Lymph; and this it does in so much the greater Quantity, because it is much larger than the *Glandula Innominata*, and the common Lachrymal Gland. He thinks it probable, that the Lymph, thus discharged and inspissated, constitutes that Substance commonly call'd the Tears of the Stag. See the *Acta Eruditorum Lipsie*, for the Year 1694. By what has been said, I do not intend to call the Veracity of those Authors into Question, who affirm, that the Tears, either of a Man or a Stag, may sometimes happen to assume a stony Consistence; but these are uncommon Accidents; whereas we only here speak of the common Tears of the Stag, or those indurated Sordes, which resemble the Wax of the Ears.

The Marrow of the Stag, or that soft and pinguious Substance contain'd in the Cavities of the Bones, is by some thought preferable to the Marrows of other Animals, for alleviating Pains, and healing malignant Ulcers. *Dioscorides* informs us, that those who are anointed with it are Proof against Poisons. And *Ovid*, in his *Art of Love*, tells us, that it was formerly used as a Paint or Varnish for the Face. When this Marrow is old, it becomes rancid, acrid, inflammatory, corrosive, and of a caustic Quality: But, when recent, it is of a mild and oleous Nature, and consequently proper for softening indurated Parts, and moistening such as are dry. Hence we know when its Use is proper, either externally, for anointing any Part affected, or when exhibited by way of Draught; or when injected, by way of Clyster, in Gripes of the Intestines.

Galen, for provoking the menstrual Discharge, order'd it to be included in a thin and clean Linen Cloth, and put into the Pudenda of Women, with a Thread at it, in order to pull it out; probably because such a Medicine, by its softening Quality, may prove beneficial where the Mouth of the Womb is preternaturally constricted, dry, or indurated; since by this means, when the Humours are just about to be discharg'd, the less Resistance may be made to them. *Hippocrates*, in his first Book *de Morb. Mul.* for this Purpose, orders to anoint the Mouth of the Womb with the Marrow of a Goose or Stag, triturated with Ointment of Roses, and Womens Milk. As emollient and lenitive Substances are beneficial in Ulcers which are either dry, or abound with a corrosive Acrimony, the Reason is obvious why *Hippocrates*, in the last-quoted Book, classes the Marrow of the Stag among the Medicines proper for Exulcerations of the Mouth of the Womb. From what has been said, we cannot assign a Reason why those anointed with it should be Proof against Poisons. If, therefore, we are so idle as to believe, that the medicinal Virtues of any Substance depend upon Fables, we must have recourse to the Enmity between the Stag and Serpents, in order to account for this wonderful Phenomenon. As for its Use in adorning the Skin, I am of Opinion, that it is proper, when other medullary or pinguious Substances are so; that is, when a Dryness or Fissures of the Skin are to be remov'd. The Preference seems to have been given to the Marrow of the Hind, the Female of the Stag, above that of the Male, because Women, when they us'd this Substance as a Medicine, were not allow'd to take it from the Male Stag. But this calls rather for the Laughter, than the serious Regard, of a rational Creature. The Marrow of this Animal is not kept in many Shops; nor, indeed, are we at any Loss on this Account, since we can more readily have the recent Marrows of other Animals, almost daily kill'd everywhere for the Use of Kitchens. When us'd as an Aliment, this Marrow is of difficult Digestion; and, when eaten plentifully, is highly injurious; but, when it is duly digested, it is very nourishing.

As for the medicinal Virtues of the *Elaphopila*, or Hairs collected in the Stomach, and sometimes in the Intestines, of the Stag, see the Article *ÆGAGROPILÆ*. We must only observe, that this Substance is form'd of the Hairs which the Animal, in licking itself, swallows down; and these Hairs are render'd compact and firm by the Filaments of the Vegetables the Animal eats, and the Juice contain'd in the Stomach.

The Lungs of the Stag, when us'd as an Aliment, are said to be of easy Digestion. But, besides, the Lungs of this Animal, especially when young, are accounted a valuable Medicine in some Cases; for if we may believe *Pliny*, in the twelfth and seventeenth Chapters of his twenty-eighth Book, the Lungs and Oesophagus of this Animal, dry'd in the Sinoak, beat with Honey, or daily taken in Wine, are good against a Cough and Phthisis. We can assign no other Reason for this, than that Stags, especially when young, by their Swiftmess demonstrate the Goodness of their Lungs. But the other medicinal Virtues, ascrib'd to the Lungs of this Animal, are no more to be depended on than this, if we may believe *Johnson*, in his *Historia Naturalis de Quadrupedibus*.

As to the Blood of the Stag, when dry'd, it is said, that, when infus'd in Clysters, it cures Ulcers of the Intestines, and inveterate Fluxes; and that, when drank in Wine, it is effectual against Poisons. It is also commended against the Gout and Fleury. The Dose is from half a Scruple to a Dram. But notwithstanding the high Encomiums bestow'd thereon, it is possess'd of no other medicinal Virtues than the Blood of other Animals.

That the Suet of the Stag banishes Serpents from those who are anointed with it, as *Dioscorides* informs us, seems to be founded on the Persuasion, that the Stag, and all its Parts, are possess'd of a Quality, whereby they resist Poison. This Suet is also said to be good for softening Tumors, conglutinating Wounds, curing Chilblains, and alleviating Pains, even those of the Gout. It is also said to be good for Hernias, Excoriations of the Perinæum, and Freckles and Exulcerations of the Face. It is a proper Ingredient in Clysters intended for the Cure of Fluxes and Dysenteries. The Oil distill'd from this Suet is said greatly to alleviate arthritic Pains, if the Part affected is frequently anointed with it every Day. According to *Hoffman*, in his *Clavis Schröder*, when laid upon a Linen Cloth, melted at the Fire, and apply'd to the Gums, it surprisingly alleviates Tooth-achs, and extracts the Worms which create the Pain. According to *Ettmüller*, "The Suet of the Stag is an excellent consolidating Medicine in superficial Excoriations. In a Falling-down of the Anus, let the Part be anointed with it warm, and gently put up. It is also an excellent Medicine for an Intertrigo, or Galling of the Skin; as also for Fissures of the Hands and Feet produc'd by Cold; for it is of a more penetrating and resolvent Nature than any other pinguious Substances. Dr. *Nesler* put one Drop of Stags Suet in the Urine of any Patient who was thought to be dangerously ill. If this Drop subsided in the Urine, he pronounc'd the Case desperate; and, if it floated, he pro-

"gnosticated

“gnosticated a Recovery.” *Hippocrates*, in his Book *De Morb. Mul.* ordered melted Stags Suet, mix’d with Oil of Roses, to be laid upon Wool, and put into the Pudenda, in child-bed Women, when the Lochia were not discharg’d. The same Author, in the last-quoted Book, recommends this Suet as a proper Ingredient in Pessaries against Exulcerations of the Uterus; and when, in order to provoke the menstrual Discharge, acrid Pessaries have been us’d, he orders these to be laid aside, and the Suet of the Stag, melted in Wine, to be apply’d. From what has been said we may infer, that in Cases where such Substances as soften, moisten, and correct Acrimony are proper, Stags Suet, when recent and mild, but not when old and rancid, may be advantageously us’d, both internally and externally, like any other Substances of a mild and oleous Nature.

As for the Ankle-bone of the Stag, or that small square Bone protuberating above the Hoof, the Powder of it is by some highly commended against Dysenteries, Colics, and the Stone; but I think they are in the right who assert, that it does not differ in Virtues from the other Bones of the Animal.

But, the Part of a Stag most celebrated in Medicine is the Horns, of which Authors give the following Accounts.

Vinegar, in which crude Hartshorn has been boil’d, is, by *Dioscorides*, *Lib. 2. Cap. 63.* said to remove the Pain attending Dentition, if the Gums are wash’d with it. Vinegar alone is a fit Medicine for allaying and removing Pains; but whether it receives any additional Virtues from the Hartshorn, must be ascertain’d by manifold Experience. *Pliny*, in the thirty-second Chapter of his eighth Book, informs us, that the Smell of kindled Hartshorn is beneficial to epileptic Patients. The Filings of Hartshorn are sometimes us’d in the time of the Plague, in order to correct and purify the Air; but they are ill adapted to that Design, because they do not resist the putrefactive Corruption of the Atmosphere, which is at that time requisite, but rather seem to promote it by their alcalescent Nature. These Shavings, reduc’d to a Powder, which is call’d prepar’d Hartshorn, is, according to *Ettmuller*, highly proper in several Cases, especially when an Acid in the Primæ Viæ is to be absorb’d, and a gentle Diaphoresis promoted. But its diaphoretic Virtue is only granted by those who believe the whole Stag to be possess’d of an alexipharmic Quality. From this Persuasion the Country-people, when labouring under malignant Fevers, make themselves a Powder of the Shavings of Hartshorn, macerated and well soak’d in a Lixivium of Marsh-trefoil, prepar’d with its own Water and Salt, and then dry’d. By the Use of this Powder the Patients are recover’d, not so much by the Virtues of the Hartshorn as by means of the Lixivium. *Willis*, *de Morbis Castr.* informs us, that he compos’d a Powder, for the same Purpose, of the Shavings of Hartshorn, with an Admixture of the Roots of Devil’s-bit, Swallow-wort, Tormentil, the Leaves of Marsh-trefoil, and Nitre. It is justly extol’d for its antiacid Virtue. But the mucilaginous, gelatinous, and tenacious Nature of Hartshorn, even when reduc’d to a Powder, renders it of difficult Digestion by weak Stomachs; and, if it wanted this tenacious Quality, it would be more absorbent than it really is. That Physicians, therefore, might not be reduc’d to a Necessity of prescribing it crude, other Preparations of it are brought into the Shops. These are of two Kinds, obtain’d either with or without Fire. The Preparation by Fire, call’d calcin’d Hartshorn, is no more than common Hartshorn, calcin’d till it becomes white, spongy, friable, and easily reduc’d to a Powder. This is afterwards to be levigated on a Marble, pouring upon it, now-and-then, some proper Water, such as that of Roses; and, when it is dry, it is kept either in the Form of a fine Powder, or in that of Troches. It is also sometimes call’d, by way of Excellence, Hartshorn prepared. The same Substance is produc’d when we take the Caput Mortuum, which remains after the Distillation of the Spirit, the Oil, and the volatile Salt, and calcine it to a Whiteness. With respect to this, *Hildanus*, in *Tract. de Gangræna*, accuses the Negligence, or rather the Ignorance, of some Apothecaries, who, instead of calcining their Hartshorn in Crucibles, or other proper Vessels, burn them among the open Coals. But this Method, as it is more easy and commodious to the Apothecaries, so ’tis more loathsome and prejudicial to the Patient; for Coals contain a malignant and pestilential Vapour in them; and the Hartshorn, whilst burning among these Coals, and whilst the Ashes every-where adhere to it, may very easily derive something of a malignant Nature from the Coals. *Dioscorides*, therefore, gave a good Method of calcining Hartshorn, when he order’d it to be put in a coarse earthen Vessel, cover’d up with Clay, put into a Furnace, and burn’d till it becomes white. Calcin’d Hartshorn is generally recommended against Putrefaction, for stopping Fluxes and Hæmorrhages, for killing Worms, and exciting a Diaphoresis. It is also recommended for provoking the Menses, for curing the Jaundice, Spittings of Blood, Ulcers, and Desfluxions of the Eyes. It is also recommended for Dentifrices, and against Pains of the Bladder, in Conjunction with Tragacanth. Some absolutely reject calcin’d Hartshorn, affirming that by the Calcination it is reduc’d to a dead Earth, and destitute of all medicinal Virtues. *Ettmuller*,

VOL. II.

in his first Volume, tells us, “That it is a pure dead Earth, which, either as an Alexipharmic or Diaphoretic, produces no Effect at all, except, perhaps, in a very remote and accidental Manner, by powerfully absorbing the Acids of the Primæ Viæ, rendering them insipid, or changing them, and, by that means, preventing their Action on the Parts of the Body. But in Diarrheas, and a Laxity of the Intestines, by absorbing the Humidity, it produces good Effects, and may, therefore, be properly exhibited in acute Disorders, attended with Fluxes, Hæmorrhages, Vomitings, and a Cholera. Where an Acid abounds in the Intestines, it is also properly prescrib’d; for it powerfully absorbs Acidities, and various acid Humours.” It is also properly exhibited for expelling Worms of the Intestines, especially those of Children. Doctor *Michaelis*, for an antidyenteric Powder, calcin’d, in a Crucible, Hartshorn with Antimony, both of which were levigated. Hartshorn calcin’d, with Antimony, was frequently us’d by *Hartman*, in an epidemic Dysentery; but he adds Gold to it at the same time. *Musitanus*, in his *Pyretologia*, informs us, that calcin’d Hartshorn is only a dead Calx, and thinks, that if at any time the Exhibition of it promotes a Diaphoresis, this Effect is owing to the Quality of the Waters with which it is exhibited, such as that of Carduus, for Instance, or to the Bed-cloths with which the Patient is cover’d. *Clauderus*, in *Ephem. N. C. D. 2. a. 4.* and *Morley*, in *Collect. Leyd.* affirm that calcin’d Hartshorn is possess’d of no other Virtues than what it has in common with other absorbent Substances, such as Crabs-eyes and Coral. *Forestus*, indeed, in his *Observat. Med. Lib. 6. Obs. 4. Schol.* asserts, that in certain malignant Fevers, epidemically raging, and attended with a Flux, and a large Number of Worms, nothing was so beneficial as calcin’d Hartshorn; but he cautiously subjoins some Classes of Absorbents, which, he says, he found as effectual in the Cure of the same Disease. I am of Opinion, that, in the Calcination of the Horns, or other hard Parts of Animals, there is a Burning of the phlogistic Part, an Expulsion of the Moisture, and an Evaporation of the volatile Salt into the Air. These Bodies must, by a Destruction of the Cohesion of their Parts, become friable, and destitute of Water, Oil, and Salt; so that I think it obvious, that calcin’d Hartshorn is not possess’d of any other Virtue than what may be ascrib’d to other dry, earthy, and absorbent Substances. Hence *Welschius*, in his *Curationes Proprie*, does not, in all Cases, think the Use of this Medicine proper, because, by its drying Quality, it may produce bad Effects. But that it is a mere earthy Body, destitute of saline and oleous Parts, may appear from this, that the like Substance is obtain’d from the Caput Mortuum, when subjected to Calcination, after the Distillation of the Spirit, the volatile Salt, and the Oil. ’Tis now obvious, that *Hoffman*, in his *Acta Laboratorii Altdorfini*, when he has told us, that *Martin Rulandus* us’d calcin’d Hartshorn for preparing Decoctions, judges rightly when he adds, “This Method may be follow’d at present, if the Patient desires an insipid Decoction, just as the celebrated *Sereta*, in his Treatise on a malignant Camp-fever, order’d one Dram of diaphoretic Antimony to be mix’d with Spring-water, and exhibited with a View to quench Thirst, and extinguish the febrile Heat.” From what has been said, we perceive the Reason why *Scribonius Largus*, in his Treatise *De Medicamentorum Compositione*, bestows so large Encomiums on a Medicine compounded of Hartshorn, cut into Slices, calcin’d in an earthen Vessel, close stopp’d, to white Ashes, and then mix’d with white Pepper and Myrrh, not only for removing present, but preventing future, Pains of the Colon. For, if the Disorder is produc’d by a cold Cause, a viscid Mucus, or a redundant Acid, this Medicine by no means appears improper, on account of the Power of absorbing Acidities, lodg’d in the calcin’d Hartshorn, and in consequence of its stimulating, resolvent, and heating Qualities, arising from an Addition of the Myrrh and Pepper. But for what Reason calcin’d Hartshorn should be accounted attenuating, as the Antients imagin’d, I can by no means comprehend. That the Antients thought so, is obvious from a Passage in the first Book of *Hippocrates de Morb. Mulier.* where, for such Women as do not conceive on account of the Fatness and Thickness of the Mouth of the Uterus, he orders the Application of a Medicine compos’d of calcin’d Hartshorn, and double the Quantity of Barley-meal, mix’d up with Wine. Calcin’d Hartshorn seems to be recommended for a Dentifrice, because it is an earthy rough Substance, especially when not reduc’d to too fine a Powder. In consequence of this, when rub’d on the Teeth, it cleanses them. It seems proper to be exhibited in those kinds of Jaundice where an Obstruction is form’d in the Duodenum by an acid Matter, which, distending it too much, blocks up the common biliary Duct, where it terminates in that Intestine. This Species of Disorder frequently occurs in Children, and is reliev’d by calcin’d Hartshorn, or any other absorbent Medicines, especially in Conjunction with resolvent Salts. Tho’ *Franciscus Joel* affirms, that it is proper in all Hiccoughs indiscriminately, yet it is of no Efficacy, except when the Disorder arises from

an acrid vellicating Matter, adhering to the most nervous Part of the Stomach, where its superior Orifice communicates with the Diaphragm. Hartshorn prepar'd without Fire, which is also call'd Hartshorn philosophically or spagirically prepar'd, is made by suspending, by a Thread, Hartshorn cut in Pieces in the Neck of a Still, from which Brandy, or some cordial Water, such as that of the *Cardus Benedictus*, or of common *Cardus*, is distil'd, that by this means the Hartshorn may be penetrated, and render'd white and friable, by the ascending Vapours. When dry'd after this Process, it is either kept in that State, or reduc'd to Truches, with some proper Water. This Preparation, by the Steam of the Liquors subjected to Distillation, is, in the *Collet. Leyd.* call'd a Fumigation of Hartshorn. This philosophical Manner of calcining it was casually found out at *Dresden in Saxony*, probably about the Middle of the last Century, by one *Caspar Pantzerus*, an Apothecary, and a Native of *Prussia*, whilst, in order to digest some Medicine, he put a Piece of Hartshorn into the Beak of the Alembic, and, upon taking it out, he found it so soft as scarcely to exceed the Hardness of Cheese. At present it is also prepar'd by boiling it in a sufficient Quantity of common Water, till it becomes soft, somewhat friable, and till the exterior blackish Coat is capable of being separated with a Knife, after which the white Substance in the Middle is dry'd, and preserv'd for Use. *Hoffman*, in his *Acta Laboratorii Altdorfenfis*, orders the Water, in which it is boil'd, to be impregnated with some alkaline Salt, that it may the sooner become soft. He also observes, that the Hartshorn, thus prepar'd, may assume a redish Colour, if it is boil'd in a close Vessel in Lime-flower-water. Hartshorn, thus prepar'd without Fire, is recommended for the same Purposes with that which is calcin'd; and the former is prefer'd to the latter by some, who, thinking it possessed of greater Virtues, prescribe it in smaller Doses. When thus prepar'd, it has the same drying and absorbent Qualities, and may be prescrib'd for the same Intentions with the burn'd Hartshorn; only it is less absorbent, because it still retains somewhat of its gelatinous Substance. *Schulzins*, in his *Prælect.* tells us, "That many Physicians ascribe little or nothing to this Preparation, since it is depriv'd of its gelatinous Part, on which its Virtues must necessarily depend. But that its gelatinous Substance is not entirely destroy'd, is experienc'd by those who put the Powder of it into Waters, which, by that means, soon become mucilaginous, and unfit for keeping long. There are also some celebrated Physicians, who recommend it, as having a tempering, antispasmodic, and, in some measure, a diaphoretic Quality, and use it very much in these several Intentions. But, above all others, a certain Physician, *Eph. N. C. D.* 2. a. b. gave this Medicine alone the highest Encomiums, as an efficacious Cure for malignant Fevers." But it may be justly suspected, that the critical Sweat, by which the malignant Fever is carry'd off, may be excited only by drinking the Water of *Cardus Benedictus*, with which the Hartshorn is exhibited. Some also call that *Hartshorn philosophically prepar'd*, which is calcin'd with an Addition of Brick-dust by way of Cementation: But this is nothing more than Hartshorn burnt. As for the various Preparations of Hartshorn in the several Dispensatories, and the Censures pass'd upon them, we shall not here give them a Place: But it must be observ'd, that, in all these Preparations of the Hartshorn, it is depriv'd of its volatile Salt, and the absorbent earthy Powders only remain.

Decoctions of the Shavings of Hartshorn, in common Water, may prove beneficial, where the Acrimony of the Humours is to be corrected, where dry Parts are to be moisten'd, and where Thirst is to be allay'd; but they are more proper in Disorders arising from Acidities, than in such as arise from an alkaliescent State of the Juices. These Decoctions ought to be weak for Persons of tender Constitutions, and somewhat stronger for those of a more hardy and robust Make; for they are of a gelatinous Nature, and not to be digested without some Difficulty. *Hoffman*, in the twenty-third Chapter of his *Off. Paral.* tells us, "That they who are of Opinion, that Hartshorn cures malignant and pestilential Fevers, either put it in the Patient's Drink, or boil it in Barley-water, which they take to be diuretic. But," says he, "I would willingly know, whether for this Purpose we are to use crude or calcin'd Hartshorn. All use that which is calcin'd, except *Saxonia*, who declares in favour of that which is crude, because it retains the Properties of the Hartshorn, which, in Calcination, are destroy'd. Some Substances we calcine in order to render them more mild, such as Brasse, and Cadmia; and others are calcin'd with a View to render them more acrid, of which Kind is Hartshorn. They who will not believe, that it assumes an acrid Quality, in consequence of its Calcination, may be convinced of this Truth by sprinkling some of it in any Wound they have received. That the Barley-water may, therefore, acquire a drying Quality, they use calcin'd Hartshorn in the Composition. But I am of Opinion, that the Discharge of Urine is not enlarged by the Hartshorn, but by the Water, which proves cherishing to the Kidneys, especially when drank in a large Quantity."

As for the various Methods of preparing the Jellies of Hartshorn, either in the Kitchens or the Shops, it would be too tedious to recount them here. The singular Virtues of Substances of this Kind are enlarged upon by *Ettmuller*, in the following Words: "The Jelly, extracted by boiling, is nothing but that Quintessence, or nutritive Juice, of the Stag, by which it is nourish'd. It is possess'd of alexipharmic as well as antifebrile Virtues, if half an Ounce, or between six Drams and an Ounce, of it is dissolved in half a Pint or a Pint of Ale, or of ordinary Drink. It is also an excellent and easily prepared Medicine against the Heat and Malignity of Fevers, and other Disorders; as also, for the Expulsion of any peccant Matter, which may happen to be lodged in the Body. It is also of a temperate analeptic Nature, fit for correcting the acrid Juices in the Body, allaying the Effervescences arising thence, and mitigating the natural Heat. Hence, in continued Fevers, nothing is more usual than large Doses of the Jelly of Hartshorn, both in alterative and alexipharmic Juleps, and in the Patient's common Drink: For this Jelly is nothing but a volatile Salt, concentrated by a spermatic Mucilage. It is either simple, for the Use of hectic and phthical Patients, for promoting the Eruption of the Small-pox, purple and petechial Fevers; or it may be sprinkled with distil'd Vinegar, or acidulated with Lemon-juice; in which Form it is more proper, in Cases where there is a preternatural Heat, and Ebullition of the Mass of Blood."

It must be carefully observed, that the Jelly of Hartshorn is no more than its Decoction, so inspissated, that, when exposed to the Cold, it assumes a Consistence capable of being cut with a Knife; that it is richly impregnated with the Substance of which the Horn was originally form'd, and consequently contains Parts fit for nourishing the Person who uses it; as also, that it is proper for lubricating the exasperated and dry Fibres, and for correcting the too fluid State of the Juices. Hence it happens, that, in consequence of its glutinous Quality, it sometimes produces desirable and happy Effects in Diarrhoeas and Dysenteries. But it must be observed, that it proves uneasy to weak Stomachs, when exhibited in large Quantities, by its glutinous Quality; for which Reason it ought to be exhibited to the Sick in a diluted Form, such as that of the Decoction. Secondly, we must observe, that, in consequence of its alkaliescent Nature, it is proper in Diseases where an acid Acrimony is to be corrected. But as many feverish, hectic, and phthical Patients suffer too much from an alkaliescent State of the Juices, acidulated Jelly of Hartshorn may so much the more safely be exhibited to them: As, on the contrary, Hartshorn-jelly, with an Addition of Aromatics, is proper in Disorders arising from a peccant Acid. For this Reason *Welschius*, in his *Curationes propriae*, for feverish Patients, generally prescrib'd this Jelly, prepared with Lemon-juice. The medicinal Uses of the Jelly of Hartshorn may, I think, be determin'd, from what has been said: But, at the same time, I am of Opinion, that it is possess'd of no higher alexipharmic or analeptic Virtues, than what may be justly attributed to the Jellies prepared from the Parts of other Animals. Nor, in order to establish the alexipharmic and diaphoretic Virtues of this Jelly, would I have recourse to an unctuous Spirit, and a volatile Salt, concentrated in it; for these may, by Distillation, be obtain'd from the Jelly itself, as well as from the crude Hartshorn. But we cannot hence infer, that any Matter acts on our Bodies by virtue of these Substances, obtain'd from the Jelly by the Violence of the Fire in the chymical Vessels. When other Substances are added to the Jelly, the Nature and Qualities of these are also to be regarded, in forming a Judgment of the Effect generally produced. Thus, for Instance, it may be affirm'd, concerning the Jelly of Hartshorn, in which excorticated sweet Almonds are bruised, so as to form a kind of Emulsion, that it is highly nutritive, and corrects every Kind of Acrimony, in consequence of the mild balsamic Oil contain'd in the Almonds, if they are recent, and not old and rancid.

As the Water distil'd from Hartshorn is taken no notice of by the Compilers of our Dispensatories, but is a Medicine much used by the *French* Physicians, we shall here give the various Methods of preparing it, directed in some of the most celebrated Dispensatories. In the *Dispensatorium Brandenburgicum*, therefore, and the *Pharmac. Paris.* it is prepar'd by Distillation from the young and tender Horns of the Stag. According to *Ettmuller*, "It is an excellent Medicine against Palpitations of the Heart; and a good Vehicle for exhibiting to Children, Infants, and Adults, alexipharmic Medicines in Fevers, and other Disorders of a malignant Nature. It is proper for promoting the Eruption of the Small Pox and Measles; as also for curing Epilepsies, either by itself, or mix'd with other proper Medicines. This Water is used with Success by Child-bed Women, when seiz'd with the purple Fever; as also in immoderate Fluxes of the Lochia, Dysenteries, and Scurvy." Others also recommend it for promoting the Expulsion of the Fœtus. But it is possess'd of scarce any other Virtues than those of common Water; for these

these young and tender Horns, as also all the other Parts of other Animals, as *Zwelfer* justly observes, only send forth, by way of Sweat, an elementary Water or Moisture possess'd of very inconsiderable Virtues; and which, tho' impregnated with an empyreumatic Smell, cannot, from that Circumstance, be thought to possess so very powerful Qualities. The *Aqua Cornu Cervi e tenellis cum vino*, in the *Dispensatorium Brandenburgense*, receives, besides the tender Horns, stimulating and alexipharmic Medicines, entire Citrons, Astringents, and other Substances, which, in Distillation, do not yield their Virtues: All these are distill'd with Wine, and Water of Germander. It is said to be alexipharmic and cordial, which Qualities it more justly claims than the preceding Water, not on account of the Hartshorn, but of the aromatic, spirituous, and heating Ingredients. *Schulzsius*, in his *Prælectiones*, passes his Judgment upon them both in the following Words: "They are supported upon a groundless and implicit Opinion, the worst of Foundations. Some fond Abettors of Antiquity, however, ascribe a great deal to Compositions of this Kind. As there is no Necessity for envying these Men their Nostrums, they may be at Liberty to enlarge at Pleasure the Class of Cordials and Alexipharmics. Of the simple Water, a few Ounces may be exhibited for a Dose; and of that prepared with Wine, one Ounce is sufficient." Both these Waters are now in Disuse, because better and more judicious, or at least as good, Compositions are to be had with more Ease. They may, indeed, be used as Vehicles for other Medicines, that the Apothecary may have no Reason to complain of sustaining a Loss on account of their being discarded. The *Aqua Typhorum Cervi*, in the *Pharmacopæia Argentoratensis*, is distill'd with Wine alone. This Preparation is by some commended as an Alexipharmic, and good against burning and malignant Fevers. A few Spoonfuls may be given for a Dose. What rises in the Alembic seems to be simple Spirit of Wine, as may be also known from its Virtues and Properties. The *Aqua Cornu Cervi Citrata*, *Waldschmidii*, in the *Pharmacopæia Argentoratensis*, is prepared of the Shavings of Hartshorn, distill'd with entire Citrons, and some distill'd Waters of Vegetables, commonly call'd alexipharmic or stimulating, with an Addition of the Water of Sorrel. This Preparation is accounted analeptic, and proper for allaying preternatural Heats. It is also said to be alexipharmic. A Spoonful of it may be exhibited at a time; or it may be mix'd with other proper Liquors. From what is before said, 'tis obvious, that whatever Virtues these Waters possess are owing to the Waters used in Distillation, and not to the Hartshorn.

I now proceed to the Spirit, Salt, and Oil of Hartshorn.

Boerhaave, whom I shall follow, in order to avoid Repetitions, has given the Method of procuring volatile alkaline Salts from all Animal Substances, of which Hartshorn is the most frequently used, under one Article. The Example he gives is in the Hoofs of Horses. But I must remark, that by Hartshorn, in Medicine, the Horns of any Deer are implied, whether the red or fallow.

Take the Parings of Horses Hoofs, whilst at Grass, as they are cut off by the Farrier, and steep a sufficient Quantity thereof in Water, that they may be cleansed, and afterwards dry'd: Put them into a Glass Retort, so as to fill it almost to the Neck; set the Retort in a Sand Furnace; apply a very capacious Receiver, and lute the Juncture with a Paste of Linseed-meal; distil with slow Degrees of Fire. There will first come over a limpid aqueous Liquor in dewy Drops: Continue the same Heat so long as this Liquor distils; then pour it out, and keep it apart; apply the Receiver afresh, and raise the Fire, till white Clouds begin to rise; at which time an unctuous Spirit will come over in oily Veins: Continue this Degree so long as it will bring any thing over: There will be now some Signs of a saline Matter. Increase the Fire again, and, along with the unctuous Spirit, there will come over a volatile alkaline Salt, shooting up in little Lumps, together with an Oil: Continue this Fire till scarce any thing more rises; then increase it to the utmost; at length, raising a Fire of Suppression, a somewhat more fix'd volatile Salt, along with a very thick red Oil, will now come over; at which time the Fæces, fusing, will run into a Mass, which swells and rises up to the Neck of the Retort. Now let the Operation cease, and take away the Receiver before the Retort is thoroughly cold, otherwise the volatile Salt will in a great measure go back into the Retort: Keep the Productions in a well-stopt Glass, for they are exceedingly volatile. The remaining Fæces are very sharp, light, spongy, as also fetid and bitter; and, if calcin'd in an open Fire, afford a little Quantity of white, insipid, and considerably pure Earth.

If Hartshorn, which has been kept for many Years, and is now grown exceedingly dry, be broke into large Pieces, and put into an Iron Pot, set in a Furnace, and fitted with a large

earthen Alembic-head, which works with two Beaks, each fitted to a capacious Receiver, and the Distillation be carefully perform'd with Degrees of Fire, nearly all the same Matters will be obtain'd; that is, a fat, oily, alkaline Spirit, a volatile Salt, a light Oil, a Salt somewhat more fix'd, and a gross pitchy Oil: There will remain behind a solid black Coal, which does not easily dissolve by Fire, but remains brittle; and, when reduced to Powder, and given upon an empty Stomach, it proves an excellent Medicine for destroying Worms.

The recent Bones of Animals, clear'd as much as possible from their Fat, and treated in the same manner, afford the same Substances; only abounding with more of a highly fetid nauseous Oil, which infects every thing it touches. Horns, Nails, Hoofs, Hair, and Silk, afford the same.

R E M A R K S,

As a greater or less Quantity of Water is drawn from all these, even the driest Bodies, it shews, how intimately Water may adhere to the other Principles of Animals, and be consolidated therewith into an extremely hard and dry Form, so as to remain fix'd for a great Number of Years; and at length be released again by the means of Fire. This principally appears when the fluid Spirit is separated from its volatile Salt and Oil; for, then, a considerable Quantity of fetid Water is procur'd: And hence it appears, that the most perfectly inodorous Bodies may, by the bare Force of Fire, acquire many Degrees and Kinds of fetid Odours; whilst each Part, separate from the rest, has a peculiar Odour, which it tenaciously retains for a very long time. And the same holds true of the Variety of Tastes produced from an insipid Body; for the Water, Spirit, Salt, and Oil, have each their particular Odour. Again, from a solid Body we have various Fluids, which concrete together again with the greatest Difficulty: We have several also, which are volatile from fix'd Bodies; and there remains, from so large a Bulk, but little Earth, which is firm and fix'd. And as the same Principles are obtain'd both from the Solids and Fluids, tho' always more Earth from the Solids, we hence see the common Nature of both, and, therefore, that the Solids are composed of the Fluids; but the larger Bones, calcin'd to perfect Whiteness, both in their Surface and Substance, with a clear and violent Fire, still retain the former Size and Figure; yet, if afterwards exposed to the Action of the Fire, in a close Vessel, they afford no Water, Salt, Spirit, or Oil, but remain crumbly; yet so as, if dipt into Water or Oil, they again acquire a Tenacity. So, likewise, if Horns, Bones, or the like Parts, be strongly boil'd for a long time in Water, with a repeated Change of the Water, and a separate Reservation of the former Decoctions; and this be continued till the Water comes off pure, after boiling with the Bone; and all these Decoctions be inspissated to a thick coagulated Mass, without burning, so as to appear almost like Horn in the Cold; then this Mass, so prepared from Hartshorn, Ivory, Bones, or Flesh, will, by Distillation, afford all the Principles, in the same manner as the other Subjects of this Process. But the horny or bony Matter, remaining after this thorough Decoction, affords so much the less Salt, Oil, and Spirit, the more Jelly was obtain'd by the boiling; from whence it seems, that all the saline, spirituous, and oily Matter proceeded only from the Juices; whilst the last Solid is a mere simple Earth, which can scarce cohere together; and containing, after having suffer'd the utmost Violence of the Fire, no fix'd Salt; but always affording, when burnt to Whiteness, a kind of Adhes proper for making the Refiners Tests. And, when Bones are treated in *Papin's Digester*, I have found, by repeating the Operation, that they remain almost wholly terrestrial after boiling. And this has shew'd me, that scarce any observable Difference could be found in these Productions, let the Animal Subject be what it would; except only in respect of the Oil, which abounds more plentifully in one Part than in another. The Oil, in the Distillation, acquires a perfectly intolerable fetid Odour, which infects all the Things it touches with an abominable Taste and Smell, not to be got out. And hence the solid Substances, thus distill'd, afford these Productions; the more infected and disagreeable, the more Oil they contain: And hence it is, that Hartshorn, which is less unctuous, affords a less nauseous Oil and Spirit than Ox-bones, which are full of Marrow; but, except this single Difference, they can scarce otherwise be distinguish'd; for all these Spirits and Salts, purified from their Oil, become the same thing; nor could I ever find any Difference betwixt these Productions, yielded by different Animals; for Horses Hoofs, the Horns of Oxen and Stags, Ivory, Tortoise-shell, Hair, and Silk, afford all the same, Whence it is of little Importance from what Subject these Things are produced, only with respect to the Oil, as above explain'd. I could never find, that the Spirit of human Blood, Hartshorn, Horses Hoofs, or raw Silk, differ'd in any thing, but the Oil. *Helmont*, I know, recommends the

Saline Spirit of human Blood before all others, because it cures the Falling-sickness: And, in *England*, *Goddard's* Drops, distil'd from Silk, are prefer'd to others of the same Kind; but I have long observed, that these Differences are seldom found, with any Certainty, in the Practice of Physic. This is evident, that all the Matter, capable of affording these Principles by Distillation, may be extracted by dissolving Animal Solids in boiling Water; whilst what remains, after a thorough Boiling, will afford little thereof: In these, therefore, almost insipid and scentless Decoctions, all that Matter lies conceal'd, which affords Salts, Spirits, and Oils, by Distillation. These Salts, therefore, of Animals could not be render'd alkaline or volatile, by so long and repeated a boiling. It is also certain, that the Air, Water, and Sun, at length deprive the Bones exposed thereto of all that Animal Matter, which, in Distillation, would afford Water, Oils, Salts, and Spirits; and in old Bones, grown perfectly white, is found, upon committing them to Distillation, nothing of these Principles, but only a simple Earth, Putrefaction having carried away the rest. It is an agreeable Experiment to boil an Animal Muscle, or, for Example, an Ox's Heart, so long in several Waters, till at last the Water comes off as pure as it was put on; then, gently squeezing the Water out of the Heart with the Hand, and repeating this several times, and boiling it in fresh Water, the external thin Membrane being taken off, that the Fat also may be resolved and separated in the Boiling, there will thus be, at length, obtain'd a perfectly solid, dry, and incorruptible Muscle, exhibiting all the Fibres; especially if hot Water has been first injected with a Syringe thro' the Coronary Vessels, so as perfectly to wash out the Blood from the Veins and Arteries; for thus the mere Skeleton of the Muscle will be obtain'd.

Rectification of animal alkaline Salts, Spirits, and Oils.

Take the entire Production of the Process describ'd above, and put it into a large Glass Body, to be hereafter kept for this Purpose; apply a large capacious Head, with its Pipe cut in the wide Part, so that the Salt may easily pass into the Receiver; otherwise it would there stop, block up the Pipe, and forcibly throw off the Head. Set the Vessel in a Bath Furnace, with a continued Heat of an hundred and fifty Degrees, so as first to bring over what will rise with this Degree: A fat, volatile, alkaline Spirit thus comes over, along with a white solid Salt. When no more ascends, change the Receiver, and keep this Liquor, with its volatile Salt, apart; and if the Salt, by shaking, does not dissolve in its Spirit, it is a Sign, that the Spirit, being pour'd out, and kept separate, is as strong and rich as can any way be procur'd: Let it therefore be kept for its particular Uses, in a close stop'd Glass, under the Title of Spirit of Hartshorn, Spirit of human Blood, &c. And let the Salt also, which would not dissolve in this Spirit, be preserv'd under the Title of the volatile oily Salt of Hartshorn, or of whatever other Subject it was procur'd from.

Urge the Remainder with the Heat of boiling Water, and there will come over another Spirit more slowly than the former, together with a light Oil floating thereon, and some Quantity of volatile Salt; continue this, till no more rises, with the same Degree of Heat; and again, keep this aqueous, oily, and saline Liquor separate; a gross fetid Oil will now remain at the Bottom of the Vessel.

Thus we obtain, from the above-mention'd Substances, a Water which is neither oily nor saline at first, as we saw in the Beginning of the preceding Process; next, an alkaline oily Spirit; thirdly, a volatile oily Salt; fourthly, a volatile Oil, with an oily Alkali a little more fix'd, and a fetid Water; fifthly, a more fix'd Oil than could be separated by a Heat of two hundred and thirteen Degrees.

If the first Spirit be again distil'd in a fresh Glass, with a hundred Degrees of Heat, the Salt is thence obtain'd purer, and almost in a solid Form. And if the Operation be continued, till the Salt sublimed begins to dissolve by the subsequent Liquor, an aqueous Fluid will remain at the Bottom, with an Oil floating thereon: So that these Spirits consist of an extremely light Water, Oil, and Salt united together; whence they again resolve into these three. This Spirit, therefore, is a volatile saponaceous Lixivium; and the remaining Water and Oil may be so separated, by a fresh Distillation, that the Water shall remain tasteless, tho' fetid, and the Oil almost without Mixture; all the Salt being separated with the more volatile Oil: And hence we may understand the Nature of these Spirits. But the Salt, separated by this Sublimation, from its Spirit, is always oily, tho' less so than the former, and therefore much whiter; because upon each Rectification it leaves a yellow, and sometimes a red Oil behind, which gave it the Colour. Hence we know, that the Salts of Animals once render'd volatile and alkaline, by Putrefaction, the Admixture of

a fix'd Alkali, or the Force of Fire in Distillation, thereby become and remain more volatile than pure Water, and the most volatile Oil; and hence, that the Water, so deserted, manifests the Oil it conceal'd before, as being united with its Alkali into a kind of Soap, soluble in Water: And now, when the Alkali is separated, the Oil will no longer continue mix'd with the Water, but floats apart.

Let the Oil, which remains after the Depuration of the Spirits, be pour'd to that remaining at the Bottom, as above-mention'd, and mix'd therewith; then pour warm Water to them, and shake them together; whereby the Salt, which might chance to remain fix'd with the Oil, will be dissolv'd in the Water; and hence the caustic Sharpness of the Oil will be got out, and the Oil itself be render'd more mild; let this saline Water be pour'd off, that the Salt may afterwards be separated from it by Sublimation. Then let these Oils be put into a Glass Body, and with the Heat of boiling Water be freed from their aqueous Moisture, till no more thereof will arise; then put the Oils into a Retort, and distil with a gentle Heat, into a capacious Receiver, gradually increasing the Fire to the highest Degree Sand will give it, till nothing more comes over; and thus the Oil will become more thin, limpid, and fetid: A black Earth remains behind in the Retort; and if the Oil, once drawn off, be a second time return'd, and distil'd upon its own black Feces, it again becomes more pure, limpid, thin, and less fetid; again leaving more Earth behind; and this happens upon numberless Cohobations. But I have scarce found any End in the Operation; for I have formerly, according to the Direction of *Helmont*, in his *Aurora Medicinæ*, endeavour'd, with great Patience, to prepare the oily diaphoretic Medicine he there prescribes; and he directs the Purification of these Oils by Distillation, so often repeated, till at last they leave no earthy Feces behind. I, therefore, distil'd Oil of Hartshorn in the manner above-mentioned, and cohobated it a number of times, but always found a black seculent Matter left behind; so that I at last lost a Part of the Oil, and gain'd a great Quantity of Earth, and still found more Earth at the Bottom of the Retort. But thus I obtain'd a very penetrating, and not ungrateful, Oil. Whence I conceive, that *Helmont*, perhaps, never brought the Experiment to a Conclusion, in the manner he directs it; and that the illustrious *Mr. Boyle*, with greater Veracity, affirms in his Treatise concerning the Transmutability of the chymical Principles, that, by many continued Cohobations, at length almost the whole Quantity of these Oils is converted into Earth, with a constant Loss of that Acrimony which remains in the Oil after the Salt is wash'd out. In the mean time, it is worth the while to cohobate these Oils fifteen times over; for thus they will become thin, pellucid, penetrating, and volatile, almost like Spirit, of a penetrating Taste and Odour, and will strangely enter all the Parts of the Body. They are anodyne, soporiferous, and resolving, good in Fevers, and grateful to the Nerves, and cure Intermittents by being rub'd externally along the Back-bone, before the cold Fit. Their Dose is from twenty to thirty Drops. And thus these Oils are reduc'd to a very large Quantity of Earth, and a very small one of true Oil: And thus the greater Part of them at length nearly acquire the same Nature, and afterwards can scarce be distinguish'd from one another; so that all distil'd Animal Oils, thoroughly depurated from the other Principles, seem to be one and the same thing, from whatever Animal they were obtain'd. See ANIMAL.

The volatile Salts of Animals are depurated several Ways, so as to render them at last perfect, and without Mixture. 1. Take a large cut Glass Body, and put into it the volatile Salts to be rectify'd; apply a Glass Head with a capacious Receiver, and distil with a gentle Sand-heat; the Salt will rise into the Head and the Neck of the Glass; continue the Operation till no more rises. Let the Salt be taken out, and kept in a close Glass; an Oil, and a fetid Substance, will be left behind. But in this Method some Oil always rises with the Salt; tho' it may, by Sublimation, be in a great measure left behind, and the Salt be obtain'd the purer. And thus the Salt of Urine, White of Eggs, Blood, Horns, and Bones, are made to appear as the same Thing: For by repeated Sublimation I have brought them to such a Likeness, that I could scarce distinguish between them; and this always the less, the oftener the Sublimation was repeated: Whence it may appear, that all the Difference of these volatile Salts depends wholly upon the empyreumatic Oil adhering thereto; which, when perfectly separated, leaves them all alike: But the Salt, when perfectly separated, grows yellow with keeping; the Oil, that was conceal'd, thus again manifesting itself. This those Chymists find, to their Disadvantage, who prepare Salt of Hartshorn for Sale; where an agreeable and permanent Whiteness is principally requir'd. I have therefore found the following Method more successful. 2. Put the Salt, obtain'd by the preceding Sublimation, into a tall Glass Body, and immediately throw thereon four times its Weight of pure, hot, dry Chalk, reduc'd to fine Powder, so as every Way to cover the Salt; then imme-

immediately lute on a dry Alembic-head, which the larger it is, and the wider its Pipe, the better; lute on a Receiver, and distil with a tepid Heat only, in Water: All the Salt will thus rise white, pure, alkaline, and volatile, whilst nearly all the Oil is detain'd in the dry and thirsty Chalk. In the mean time, this Addition of Chalk will not change the Nature of the Salt, but only keep back its Oil, and thus separate it from that Foulness; and the Salts, thus prepar'd, may be long kept without changing, especially if, before Sublimation, they were well ground with the Chalk: But in that Case much of them would be lost, or fly off into the Air in the grinding, and the Remainder would presently dissolve by attracting the Moisture of the Air. Lastly, if, when the Salt is thus depurated, by means of Chalk, as much pure Spirit of Sea-salt be mix'd therewith, as suffices to saturate it perfectly, and the Sal-ammoniac, thus produc'd, be dissolv'd in Water, perfectly filtrated, and inspissated into a Salt, and this Salt be distil'd with a fix'd Alkali, a pure, solid, white, alkaline Salt rises, which is the most genuine that can be procured, and perfectly free from Oil. When volatile, alkaline, oily Salts are, by these three Methods, reduc'd to their utmost Purity, there appears no sensible Difference between them, whether they are spontaneously generated in the Subject, or produc'd by Putrefaction, or by Fire; and they are obtain'd perfectly in the same Form from Birds, Land Animals, and amphibious Creatures, Fish, Reptiles, subterraneous Animals, alcalescent Vegetables, and Soot; for as they all, when depriv'd of their Spirit and Oil, afford the same Species of Sal-ammoniac, along with the Spirit of Sea-salt, so this Sal-ammoniac, being afterwards resolv'd by fix'd Alkalies, affords the same alkaline Salt and Spirit of Sal-ammoniac. Hence, therefore, pure volatile Alkali is but one Thing in Nature, when obtain'd pure; but the Difference found in it always depends upon the Admixture of some other Principle, especially the Oil adhering thereto, which is very different in different Subjects, altho' the principal Difference of the Oils is owing to a very small Quantity of Spirit. Hence we see, that the Water, Earth, and Salt of Animals, when by the means above-mentioned reduc'd to their utmost Simplicity, are perfectly the same without any Difference; so that the peculiar Characteristic of each is principally lodg'd in the Oil alone; the Oil alone being distinguish'd by its Spirit, which when perfectly taken away, Oils themselves also become wonderfully alike. This presiding Spirit, therefore, constitutes the true Difference in Animals; and these are the ultimate and simple Effects of a chymical Analysis. If the Artist here endeavours to proceed further, he will be in Danger of losing his Subject; the Particles whereof are now subject to fly away; for when the Principles are thus purify'd, they do not greatly cohere together; tho', by differently uniting with one another, they form a prodigious Variety of Compounds.

R E M A R K S.

The chymical Properties and Virtues of this pure, volatile, alkaline Salt, are principally these. 1. It makes an Effervescence with all the known Acids, as strong and as durable as a fix'd alkaline Salt; closely joins the Acid with itself, and retains it so as to form a compound Salt according to the Nature of the Acid. And thus, when fully saturated, it increases $\frac{2}{3}$ in its Weight. Whence we may understand the requisite Proportion for making the Balance betwixt an Acid and an Alkali, and how much of either may be again expected upon the Resolution of these compound Salts. But as soon as the Point of Saturation is exactly gain'd, the Action of the Salt, so produc'd, is neither to be estimated from the Acid or the Alkali of the Composition, but from the new Nature the compound Salt has acquir'd. And hence the Error of those may be easily confuted, who conceive that the Virtues of compound Salts are such as they observe in the Parts produced by a Separation. 2. This Salt, actuated with the Heat of a healthy Body, presently inflames, burns, and causes a gangrenous Eschar, and therefore perfectly destroys all the Parts of the human Body to which it is so apply'd, as that its Motion, arising from the Heat, may be driven in upon the Part. Thus, if a Scruple of the pure volatile Salt of Hartshorn be laid upon the Skin, and covered with an adhesive Plaster, it will in half a quarter of an Hour raise a black Carbuncle, as if a Piece of hot Iron had been there applied; and the Colour, Pain, Heat, and Hardness of the Skin, are also the same as they would be in that Case; and it resolves the Humours into a thin, sanious Liquor. 3. It is the most moveable Body of any hitherto known, as exceeding even Alcohol in Volatility: For, if Alcohol, Water, and this Salt be put together in a tall chymical Glass fill'd with an Alembic-head, and a small Degree of Heat be applied, the Salt will rise by itself into the Head long before the Alcohol; the Alcohol will next follow, and the Water at last with Difficulty. And thus this Salt flies off from every heating Point, and, if laid upon the warm Hand, it presently flies away without hurting the Hand, as

VOL. II.

in this Case its Reaction is not great upon the heating Body; wherein it greatly differs from the fix'd alkaline Salt, which adheres by its Weight. But when these volatile alkaline Salts are received into the Vessels of the Body, and there actuated by the vital Heat, and the Force of the circulating Fluids, they act very powerfully by a sharp, stimulating, and corroding Virtue, especially upon the more sensible fine Fibres of the nervous System, which they excite to greater Motion; and at the same time thinning the Humours, promote Perspiration, Sweat, Urine, and Saliva. They likewise frequently prove serviceable upon receiving their volatile Exhalation, along with the Air, into the Nostrils; for thus they irritate the Membrana Pituitaria of the Nose, Mouth, Jaws, Lungs, and, by irritating thereof, dissolve the viscous Phlegm, which may adhere thereto, provided they be used with Caution. 4. These Salts, therefore, are proper, and have very good Effects, in aqueous, acid, and austere Distempers of the Humours, as also in Torpidity of the nervous System, and disorderly Motions of the Spirits, rushing irregularly and involuntarily into particular Muscles. And hence they excellently cure hypochondriacal, hysterical, epileptical, and spasmodical Disorders. Being diluted with Water, and receiv'd in the Form of Vapour into the Vagina Uteri, they are esteem'd one of the most immediate Remedies, when prudently apply'd, for promoting the Menses, if requir'd. But they prove poisonous in alkaline and putrid Disorders, where the Humours are dissolv'd, and the Body already too much agitated. They may also be externally apply'd, by way of a Caustic, for the making of Issues, the extirpating of Warts, and taking off Styes upon the Eyelids. The Method of using this Salt in these Cases, is by laying it upon a little Pellet of Lint, and applying it to the Part; then covering it with an adhesive Plaster, and leaving it thus, till it may be thought to have performed its Office. *Boerhaave's Chymistry.*

The volatile Salt of Hartshorn is by some so highly extol'd, as almost to be pronounc'd an universal Medicine in Epilepsies, Apoplexies, Lethargies, Vertigoes, and, in a Word, all the Disorders incident to the Brain. The same Virtues are ascrib'd to it in the Cure of hysteric Fits, in opening Obstructions of the Viscera, in removing all Fevers, Disorders of the Kidneys, and the Bladder, the Plague, and the fatal Effects of all Poisons. It is no less extol'd in rendering the Body soluble when costive, and reducing it to a due State when it runs into the opposite Extreme; as also in provoking the Menses, and at the same time giving a seasonable Check to them, when they flow immoderately. According to *Ettmuller*, *Moebius* informs us, "That the volatile Salt of Hartshorn, duly exhibited, not only excites a Diaphoresis, but also a Vomiting." It is given internally, mix'd with other Substances, either in the Form of Powders, Pills, or Potions. When put into a narrow-mouth'd Glass, it is applied to the Nostrils for opening their Obstructions, created by a viscid Lymph. It is also us'd in the same manner for recovering and animating apoplectic, epileptic, and hysteric Patients. If the Virtues of this Medicine are really so great as is pretended, and if it is indiscriminately proper in all the above-mention'd Disorders, there would scarcely be a Necessity for any other Medicine in the Shops, besides those of the refrigerating, emollient, and emplastic Kind, since the Effects produc'd by all the others might be expected from the volatile Salt of Hartshorn alone.

The rectify'd Spirit of Hartshorn, according to *Ettmuller*, "is very much us'd in the Cure of Fevers, and acute malignant Disorders, in exciting a Diaphoresis, and removing Epilepsies. It penetrates the whole Body, corrects Malignity by its alexipharmic Quality, and expels it by a Diaphoresis. It corrects vicious Acids, and promotes the Eruption of Pustules, Spots, Small-pox, and Petechiae. Some account it an universal Medicine, and certainly nothing is more proper in the Increase of malignant Disorders." *Ludovici*, in his *Pharmacopæia*, calls it a highly penetrating alexipharmic in most malignant Disorders, and an excellent Cephalic in those of the vertiginous and lethargic Kind, when apply'd to the Nostrils. *Schulzius*, in his *Prælectiones*, tells us, that it is exhibited internally from ten to thirty Drops, and that robust Countrymen sometimes take a Dram of it in Brandy. It is of an aperient, antispasmodic, and sedative Quality. In Conjunction with a proper Regimen, it is highly diaphoretic; but when it has not the Advantage of this, it rather proves diuretic. In *Eph. Nat. Curios.* Dec. 3. a. 1. a. 91. we are told, that, after the fruitless and ineffectual Use of other Means, it happily cur'd a malignant epidemical Fever, which rag'd after a moderately warm and rainy Winter; for the Patients, after the Exhibition of it, were immediately freed from the Delirium, and convulsive Motions, with which the Disorder was accompany'd. *Splissius* informs us, that it produc'd a surprising Effect upon a Woman, who, in consequence of an intemperate Method of Living, labour'd under Indigestion, Loathing of her Food, Restlessness, and Loss of Strength: At last,

last, being seiz'd with such a violent fainting Fit, that her Case was judg'd desperate, half a Dram of the Spirit of Hartshorn was exhibited to her, without her perceiving it; immediately after which she rose up, vomited Worms, and was in a surprising manner snatch'd from the Jaws of Death. *Hoffman*, in his *Acta Laboratorii Altdorfsensis*, recommends its Use by way of Ointment in the Cure of malignant, phagedenic, and cancerous Ulcers. He also orders a Mixture of it with some proper Decoction, to be injected into Fistulas by means of a Syringe.

Sydenham recommends two, three, or four Drops of Spirit of Hartshorn, in a Spoonful or two of black Cherry-water, or of some proper Julap, five or six times repeated, as an excellent Remedy against those feverish Disorders, to which Children are subject whilst breeding their Teeth. But to Adults it may be given in the Quantity of fourscore Drops or more, if exhibited with a View of answering any Intention.

I shall say no more of the Virtues attributed to the Salt and Spirit of Hartshorn, which are by some celebrated with extravagant Encomiums, because their genuine Efficacy is specify'd in the preceding Quotation from *Boerhaave*. Mean time I am abundantly sensible, that great Numbers of tender People do themselves infinite Prejudice by habituating themselves to take large Quantities of Hartshorn-drops, and those frequently repeated, as this Custom paves the Way to Drams, excessive Disorders of the nervous Kind, and in the End Death. And it may be remark'd, that it is no new thing for a Medicine of great Importance, when duly apply'd, to become deleterious by an improper, or too frequent Use. But if the Salt or Spirit of Hartshorn happens to be adulterated, which is generally the Case, the Consequences of taking it may happen to be much worse. *Quincy*, a pretty good Judge of Subjects relating to Pharmacy, observes, That these Preparations have hitherto stood in the Front of nervous Medicines; but the wicked Sophistications of our Chymists have debased them into disregard, and almost expel'd them out of Practice. To give the Spirit an uncommon Pungency and Quickness of Smell, which is all they want to recommend it to Sale, a Way has been found to quicken it with Lime, and urinous Volatiles; and they have been so hardy herein as to own it, and give it a Place in their Catalogue, of *Spiritus Cornu Cervi cum Calce*, Spirit of Hartshorn with Lime. And now the Fraud is so far improv'd, that they will make it without any Hartshorn at all, but with Bittern, that is, the Brine which they get from the Salters, Urine, and Lime, which will raise a strong-scented Spirit; and this these very honest Men give some Scent and Colour to, with a little of the fetid Oil of Hartshorn, and put off for what is genuine; or without that Oil, for Spirit of Sal Ammoniac. So that from eight and ten Shillings per Pound, which the genuine Medicine deserv'd, these Gentlemen, to oblige a good Customer, can afford it now for as many Pence. But a curious Person may pretty easily discover this Cheat, by the rancid urinous Smell of the sophisticated Sort, and its whitening the Inside of a Glass in which it is long kept. The volatile Salt too, which is now sold in the Shops for that of Hartshorn, is a perfect Cheat, and more a Cause than a Cordial, by the Quantity of Lime and urinous Salt that is thrown up with it; whereas that which is carefully to be collected in the Distillation of the Spirits, about the Top and Neck of the Receiver, is truly an animal volatile Salt, soften'd with such a Portion of a highly subtiliz'd Oil, as renders it an admirable and agreeable Medicine; but this is never to be met with, or made use of, unless the Physician will be at the Trouble of attending the Laboratory, or find a Person honest enough to make it on Purpose for him: For one Dram of this genuine Salt may be stretch'd out into one Pound of that used in the Shops.

With respect to Salt of Hartshorn, the Dose is from three to twelve, fifteen, or twenty Grains. But there are great Error committed in the common Practice in its Prescription, by putting it either into Forms which it will destroy, or which will make it lose its Volatility before it gets to the Patient. In Pills it will not lie, no more than any other Volatiles, but will rarefy them into ten times their proper Bulk. Boles likewise it will puff up in like manner, and soon make its Escape; and in Powder, wherein it is often order'd, in a very small time it is not better than a Calx, or so much Powder of Lime. There is therefore no Form to preserve its Virtues in, but by dissolving it with some proper Vehicles into Draughts.

Liquor Cornu Cervi Succinatus.

For preparing this celebrated Medicine, equal Quantities of the volatile Salts of Hartshorn, and of Amber, are to be dissolved in redified Spirit of Hartshorn, till the Liquor is saturated; then they are to be digested in a close-stopt Glass Phial, placed in a gentle Bath-heat, till they are intimately united; then they are to be distill'd from a Retort, with the Juncitures carefully luted, and placed in a moderate Sand-heat; after which, Cohobation is to be frequently repeated. In the *Dispensatorium Brandenburgense*

four Ounces of the Spirit of Hartshorn are directed for one Ounce of the volatile Salts of Hartshorn and Amber. Thus the volatile Salts ascend with the Spirit, and constitute the *succinated Liquor of Hartshorn*.

The remaining Caput Mortuum, when calcin'd to Whiteness, is of a double Use; for, first, it powerfully absorbs any Acids lodg'd in the Primæ Viæ, and by that means accidentally, or very remotely, promotes a Diaphoresis. Secondly, it is somewhat astringent, and for that Reason may be commodiously exhibited in acute Disorders, accompanied with a Flux.

This Liquor was first brought into Use by Dr. *Michaelis*, a celebrated Practitioner at *Leipsic*; and *Ettmuller* informs us, that by a thousand Experiments, both on old and young, on Men and Women, it has establish'd to itself a just Reputation, as an approv'd Medicine. The same Author highly recommends a Dose of twenty or thirty Drops of it in curing Catarrhs by a Diaphoresis; he also affirms, that it is an excellent Analeptic, especially when exhibited to Children, in order to correct Acidities, and incide or attenuate viscid Crudities. *Hoffman*, in his *Acta Laboratorii Altdorfsensis*, informs us, that it is highly beneficial in Epilepsies, Apoplexies, lethargic Disorders, convulsive Asthmas, and other spasmodic Disorders, especially those incident to Children. *Konigius* tells us, that *Ettmuller* found this Liquor highly beneficial in various Disorders of the Lymph; and that he himself had found it so in Disorders of the Head, especially in those Patients who are of a hot Constitution. To use the Words of the learned *Faginus*, in his Notes on the *Dispensatorium Brandenburgense*, "Various and sufficiently excellent Virtues are commonly ascrib'd to this Liquor, especially in catarrhus Disorders, and such as draw their Origin from a Redundance of Mucus or Serum, on account of its remarkably resolvent, discutient, and corroborating Quality; nor, when exhibited with these Intentions, is it a despicable Medicine, provided it is only administer'd prudently, and rather to those of a phlegmatic, than of a sanguine Constitution. It is proper for alleviating spasmodic Pains, inciding and resolving particular Congestions of Blood, especially those of long standing; for by a prudent Use of it alone, we read, in the *Annales Phys. Med. Wratislav. An. 1722. M. Februar. Class. 4. Artic. 17.* that a violent and highly obstinate Hemicrania was happily and effectually remov'd. But even in Cases of this Kind it is to be cautiously and sparingly used, lest Symptoms as bad, or perhaps worse than the original Disorder, should be brought on by its Use; an Instance of which we find in the said Annals, *Ann. 1724. M. Aug. Class. 2.* produc'd by an unseasonable and too large Dose of this Medicine." With the preceding Caution, therefore, we assent to what *Schulzius*, in his *Prælectiones*, affirms concerning it; which is, that it is an excellent Diaphoretic, a powerful Diuretic, and at the same time a valuable Antispasmodic, and well calculated for checking convulsive and epileptic Motions, especially in Children. To Infants one or two Drops make a sufficient Dose. To Children, three, five, or six, may be exhibited; whereas Adults may bear twenty, twenty-five, or thirty. If with the Compilers of the *Augustan Dispensatory*, for composing the succinated Liquor of Hartshorn, we dissolve one Part of the succinated Salt of Hartshorn in three Parts of black Cherry-water, we obtain a Medicine of the same Virtues, which may be exhibited in a larger Dose, because it is more diluted and weak; for if we inquire into the Composition of this Remedy, 'tis obvious that it consists of volatile Salts of two Kinds united together; the alkaline Salt, for Instance, of the Hartshorn, and the acid Salt of the Amber. Hence *Konigius* concludes, that the succinated Liquor of Hartshorn is only of an ammoniacal Nature; for Sal Ammoniac is compos'd of a volatile alkaline Salt, and the acid Part of common Salt; and because, according to him, Amber is the Produce of the Sea, he concludes that a Liquor of this Kind may be prepared in an extemporaneous Manner, by mixing the volatile Spirit of Hartshorn well dephlegmated, that it may not again stand in need of being quicken'd with the volatile Salt of Hartshorn, with the Spirit of common Salt: Hence an Effervescence being produc'd, a Liquor analogous to the Nature of an ammoniacal Salt is obtain'd. This Liquor is of singular Efficacy not only in the Disorders of Children, but also in nephritic Pains. Besides, if Spirit of Hartshorn, or its volatile Salt, is mixed with Spirit of Nitre, and an Addition made of the *Essentia Theriacalis*, or the *Spiritus Bezoardicus*, a Medicine is obtain'd, which is of singular Efficacy in acute Disorders, and internal Inflammations. But this Author's Assertions must be confirm'd by the Experience of others, before we give our Assent to his Opinion. Besides, it may be justly doubted, whether Amber is produc'd by the Sea-salt.

CESTRUS, κέστρος. The Mullet.

CESTRITES *Finnm.* κέστριτες οὐδὲν. Wine impregnated with Betony. *Discoartiles*, L. 5. C. 54. gives the Method of preparing it. The Virtues may be known from those of Betony.

CESTRUM, κέστρον. Betony.

CETA-

CETACEUS. Cetaceous. Those sort of Fish are call'd by this Appellation, which are very large, and which bring forth a perfect Animal, instead of Spawn. Or the cetaceous Fishes are those, which, like viviparous Animals, respire by means of Lungs, generate, conceive, bring forth young, and nourish them with Milk.

CETE, or CETUS. The Parmasitty Whale. See **BALÆNA.**

CETERACH. See **ASPLENIUM.**

CEVADILLA, Offic. Monard. 343. *Cevadilla Hispanorum*, Ind. Medic. 33. *Cevadilla sive Hordeolum causticum Americanum*, Park. Theat. 1625. *Hordeum causticum*, C. B. Pin. 23. Theat. 467. Raii Hist. 2. 1246. *Ytzuimpatli, seu Canis interfector vel Hordeolum*, Hernand. 307. **INDIAN CAUSTIC BARLEY.** Dale.

Ray informs us from *Monardes*, that the Seeds of this Plant are so extremely burning and caustic, that they may be used in Gangrenes and putrid Ulcers, instead of the actual Caustery or Sublimate. The Seed powder'd and sprinkled in Ulcers kills Worms, which sometimes breed therein, and cleanses them.

Dale says it is the feminal Capsula which is used. It is brought from *Mexico*.

CEVILLUS, or Ludus, Paracelsi. This is a Stone mention'd by *Paracelsus*, and *Helmont*. See **LUDUS.**

CHAA. The Plant of which Tea is the Leaves.

CHACEF. An Earthen Pot. *Rulandus*.

CHÆROPHYLLUM.

The Characters are, in every respect, the same as those of the Myrrhis, except that the Seeds are not striated.

Boerhaave mentions four Species of this Plant.

1. *Chærophyllum sativum*, C. B. Pin. 152. Raii Hist. 1. 430. Tourn. Inst. 314. Elem. Bot. 264. Boerh. Ind. A. 70. Buxb. 63. *Chærophyllon*, J. B. 3. 75. Chab. 393. *Cerofolium vulgare*, Park. Parad. 494. Ger. 882. *Cerofolium vulgare sativum*, Ger. Emac. 1338. *Cerofolium sativum*, Mor. Umb. 46. Hist. Oxon. 3. 303. *Cerofolium officinarum sive Chærophyllon, Tournefortii*, Rupp. Flor. Jen. 228. **CHERVIL.**

F. Hoffman affirms, that Chervil is good for resolving coagulated Blood; and that it is used in Broths with good Effect, as a Promoter of Expectoration in an Asthma; that it is vulnerary, resolvent, diuretic, and emmenagogue.

This is a small, low, umbelliferous Plant, with winged Leaves, smaller and finer than Parsley; its slender channel'd Stalks rise not much above a Foot high, beset with the like Leaves, but smaller, and bearing at their Tops small Umbels of five-leav'd little white Flowers, whose Petals are cut in two, and succeeded by long, smooth, round Seed, thicker at the Bottom, and sharper pointed at the Top. The Root is small, perishing yearly. It is sown in Gardens.

Chervil is much of the Nature of Parsley, being aperitive and attenuating, good for the Stone and Gravel, and to provoke Urine and the Menfes. It is more used as a Salad-herb, than for any physical Use. *Miller's Bot. Off.*

2. *Chærophyllum sylvestre perenne*, *Cicutæ folio*, Tourn. Inst. 314. Elem. Bot. 264. Boerh. Ind. A. 70. *Cicutaria vulgaris*, Offic. J. B. 3. 71. Chab. 404. Raii Hist. 1. 429. Synop. 3. 207. *Cicutaria alba*, Merc. Bot. 1. 29. Phyt. Brit. 28. Mer. Pin. 26. *Cicutaria alba Lugdunensis*, Ger. Emac. 1038. *Cerofolium sylvestre*, Dill. Cat. Gist. 51. Rupp. Flor. Jen. 228. Rivin. Irr. Pent. *Cerofolium sylvestre perenne seminibus lævibus nigris*, Mor. Umb. 46. Hist. Oxon. 3. 303. *Chærophyllum sylvestre*, Buxb. 64. *Myrrhis sylvestris*, Park. Theat. 935. *Myrrhis sylvestris seminibus lævibus*, C. B. Pin. 160. **WILD CICELY COW-WEED.**

Tragus, being persuaded it was the Myrrhis of *Dioscorides*, advises the Use of it for the Suppression of the Terms; but *J. Baubine* relates a melancholy Story of two Families, that had eaten the Roots of this Plant instead of those of Parsnips. *Martyn's Tournefort*.

The Roots of this Plant are poisonous, causing Difficulty of Breathing, Torpors, and Madness. This is, perhaps, the Root, which is often in *England* mistaken for Parsnips, and are usually call'd by the Country People Madnips.

3. *Chærophyllum*; palustre; latifolium; flore albo. *Myrrhis, palustris, latifolia alba*. T. 315.

4. *Chærophullum*; palustre; latifolium; flore albo. *Myrrhis, palustris, latifolia, rubra*. T. 315. *Boerhaave's Index alter Plantarum.*

CHAFAR *Alpini*. A sort of Egyptian Melon.

CHAITA, चािता. The Mane of a Quadruped properly, but used to express the Hair of the Occiput by *Ruffus Ephesus*.

CHALASIS, χαλασις, from χαλαρε, to relax. Relaxation.

CHALASTICOS, χαλαστικός. Relaxing. Thus *Chalastica Medicamenta*, are Medicines which relax Parts which are too tense. They differ but little from Emollients.

CHALAZA, χαλαζα. Chalazion, χαλαζιον, signify properly a Hail stone. But they import also a Disease to which

Swine are very subject, in which the Flesh is found full of small Tubercles like Hail-stones. *Chalaza* also is the Name given by Naturalists to a white knotty kind of String at each End of an Egg, formed of a Plexus of the Fibres of the Membranes, whereby the Yolk and White are connected together.

But the most common Disorder call'd by this Name is one of the Eyelids, which consists in a Tubercle like a Hail-stone. The Eyelids are subject to several Sorts of Tubercles, much of the same Nature, but distinguish'd by their Similitude to particular Things. Thus that which is like a Grain of Barley is call'd *Crithe*; and that which is hard like a Stone, is call'd *Lithiasis*.

The Crithe or Barley-corn is a Tumor of various Sizes; it grows in different Parts of the Eyelids; 'tis commonly call'd a Stye. When it is small, it comes only on the Edge of the Eyelids, or very near it, between the Cilia; but when it is larger, it spreads towards the Middle of the Lid. In their Beginning an Inflammation commonly accompanies these Tumors: When they do not suppurate, their Matter is concentered, and they become Wens, which are sometimes soft, and sometimes very hard. Though they are not very troublesome, especially when they are without Pain; yet there is no one who would not wish to be rid of them. This Disease is subject to Variations; for sometimes it disappears awhile, and afterwards it returns in a few Days. The Cure of this Disease is suited to the different Circumstances which attend it. If there is an Inflammation, the Pap of a roasted Apple, laid in the Form of a Plaster, or Poultice, soon disperses it, and sometimes only abates the Tumor. If it hardens, and becomes concentered, apply the *Emplastrum Diabotani*, or that of the *Abbot de Grace*. See **EMPLASTRUM.**

If it does not disperse by these means, it must be opened with the Point of a Lancet. Seldom any Matter is found in it; for often it is only a kind of hard Flesh, which must be consumed by a liquid Caustic; afterwards let the Plaster of the *Abbot de Grace* be laid on, and let the concentered Flesh be touch'd several times with the liquid Caustic, till it be entirely wasted. Great Care must be had not to put too much Caustic at a time, lest the Eyelid should be pierced, and the sound Part beyond the Tumor be consumed.

If the Crithe comes on the lower Eyelid, it is generally more on the Inside than on the Outside; it is easily seen, if the Eyelid be turned down. It is cured by consuming it with the *Lapis Infernalis*, provided the following Method of removing it be not preferable.

The Eyelid being turned down, pass a crooked Needle, threaded with Silk, through the Tumor; when the Needle is through, let the Operator take in one Hand the two Ends of the Silk to raise the Tumor, whilst, having a Lancet in his other Hand, he makes an Incision with it in the Membrane which covers the Tumor towards the Edge of the Eyelid; then let him lay by his Lancet, take a Pair of Strait Scissars, and, introducing one Side of them into the Orifice, let him, with the other Side, which must be directed on the Side of the Globe of the Eye, cut the Tumor, as near its Base as he can. The Wound is, for the most part, healed in eight Days with a Collyrium made of Water ten Parts, to one Part of Spirit of Wine. There are likewise other little Tumors, which come on the Edges of the Eyelids, and by reason of their Whiteness and Hardness are called *Chalazæ*. Their Size is not always the same; if they are large, they may be separated from the Eyelid by a Lancet, with which an Incision is to be made in the Skin which covers them; then, with a small Scoop, the Body of the Tumor is to be drawn out. Both these Sorts of Tumors will come out equally, if, instead of an Incision, the Skin which covers them is touched once or twice by the *Lapis Infernalis*, which will consume it.

Besides these, there is another sort of Tumor which grows on the Eyelids, called *Lithiasis* or Gravel-stone; they are generated by a concentered Humour, which changes, as it were, to little Pebbles, or Grains of Sand. They are cured in the same manner as the foregoing Tumors. *Saint Yves*.

CHALBANE, χαλβαν. Galbanum.

CHALCANTHUM. Vitriol. See **VITRIOLUM.**

CHALCEDONIUS, Offic. De Lact. 76. *Chalcedonius*, Boet. 238. *Chalcedonius, alius Chalcedonius*, Charlt. Foss. 34. *Chalcedonius, seu Cancri lacus*, Worm. 98. **THE CHALCEDONY,** a sort of precious stone.

As to its medicinal Uses, it is, by some, thought serviceable against all Disorders arising from black Bile, such as Sadness, Melancholy, and the unaccountable Dread of Demons and Spirits. Those brought from the *East Indies*, which are moderately pellucid, and variegated with whitish milky Streaks, if hung about the Breast, are said to generate abundance of Milk. Some Authors also are so ridiculously superstitious and whimsical, as to promise Victory to the happy Combātant who wears the Chalcedony-stone about him. Its true and genuine medicinal Virtues seem to consist in its absorbent Quality, when it is reduced to a fine Powder, and exhibited like the other earthy and absorbent Powders. But because the Apothecaries have other Substances

Substances of the same Virtues, and, at the same time, far more easily prepar'd, it is rarely prescrib'd by the Moderns.

Chalcedonius is also the Name of a Medicine describ'd by *Galen*, and directed by him to be infus'd into the Ears, in inveterate Disorders of that Part. *Galen. de Comp. Pharm. Secundum Locos, Lib. 3. Cap. 1.*

CHALCEION, χαλκίον. This, according to *Boerhaave*, is the *Pimpinella*; *Spinosa*; seu *Sempervirens*.

CHALCIDICA *Lacerta*. A sort of Serpent, so call'd from its Resemblance in Colour to the Chalcedony. Its Bite is succeeded by a pellucid Tumor, which has a kind of shining Blackness at the Margin. Drank in Wine, it cures its own Bite, according to *Paulus Aegineta, Lib. 7.* It is also call'd *Seps*.

CHALCITIS, Offic. Matth. 1365. Worm. 26. Aldrov. Mus. Metall. 340. Charlt. Foss. 11. Kentm. 15.

As the *Misy*, *Sory*, *Chalcites*, and *Melanteria*, are generally found in the same Mines, Authors usually treat of them together, whose Examples I shall follow.

The χαλκίτις of the *Greeks* takes its Name from χαλκός, Brass, and is commonly describ'd to be a metalline Recrement, of the Colour of Brass, diversify'd with oblong shining Veins, and produc'd in the same Ores which give Birth to the *Sory* and the *Misy*. Betwixt these two Substances it holds a middle Rank, not only with respect to its Bed, but also with respect to its Consistence; for, according to some, the *Sory* is thinner, and the *Misy* thicker; and, according to others, the *Sory* is thicker, and the *Misy* thinner, than the *Chalcitis*. According to *Galen*, the undermost Bed is of a Texture stony, and consists of *Sory*: Over this lies the second Bed, which is *Chalcitis*, and resembles an Efflorescence; and the uppermost Bed is that of the *Misy*, which resembles *Verdegrise*; but, in Process of Time, the *Chalcitis* is converted into *Misy*, and the *Sory* into *Chalcitis*. According to *Pliny*, "That Stone is call'd *Chalcitis*, from which the Brass itself is obtain'd. It differs from the *Cadmia* in this, that the former is cut from Rocks above the Ground, whereas the latter is only obtain'd from such as lie conceal'd under it. The *Chalcitis* also becomes immediately friable, and assumes a soft Texture, in Appearance like that of concreted Down. There is also another Distinction between the *Cadmia* and the *Chalcitis*, which is, that the latter contains three kinds of Substances, Brass, *Misy*, and *Sory*; for it has oblong Veins of Brass. That is thought best, whose Colour resembles that of Honey, has slender Veins, is friable, and not of a stony Nature. That which is recent is also accounted best, because, when old, it becomes *Sory*." According to *Dioscorides, Lib. 5. Cap. 115.* that Species of the *Chalcitis* is best which resembles Brass, is friable, not stony, recent, and variegated with oblong and shining Veins. This Substance is of an absterfve heating Nature, and cicatrizes Ulcers. It removes the tough and viscid Matter which sticks in the Eyes, and their Corners. In a Word, it is among the Number of the gently corroding Medicines. It is an effectual Medicine against an Erysipelas and Herpes. In Conjunction with the Juice of Leeks, it stops Hæmorrhages from the Womb and Nostrils. The Powder of it cures Disorders of the Gums, spreading Ulcers, and Tumors of the Tonsils. When calcin'd, and triturated with Honey, it proves an excellent Medicine for Disorders of the Eyes. It removes and destroys Callosities and Roughness of the Eyelids. It cures Fistulas of the Eyes, when put into them by way of Collyrium. Of the *Chalcitis* is prepared a Medicine distinguish'd by the Epithet *Pforicon*. For this Purpose we must take two Parts of the *Chalcitis*, one of the *Cadmia*, and triturate the Whole in Vinegar. But this Medicine must be bury'd in Dung, in an earthen Vessel, for forty Days, during the Appearance of the Dog-star, that it may become more acrid, which the *Chalcitis* itself also does by the same Method. Others prepare the same Medicine, by triturating equal Portions of these two Substances in Wine. The *Chalcitis* is to be calcin'd in a new earthen Vessel, plac'd over live Coals. It is customary to calcine the moister Kinds of the *Chalcitis* till it does not rise in Bubbles, and is become perfectly dry; but the other Kinds may be taken off the Fire when they have assum'd a florid Colour, resembling that of Blood or Minium. The *Sordes* appearing on the Surface must be blown off; or it may be calcin'd upon Coals, blowing them all the time, till it assumes a palish Colour; or, putting live Coals under the Vessel, it is to be stir'd about till it flames, and changes its Colour." 'Tis obvious, that the Antients reckon'd the *Chalcitis* among the absterfent, drying, acrid, caustic, or escharotic Medicines. The Variety of Compositions, in which, according to *Scribonius Largus*, they us'd this Ingredient, is a sufficient Proof of this. That it was apply'd to the same Purposes by their Farriers, we may find in the twenty-sixth Chapter of the second Book of *Vegetius*. *Forestus*, in his *Observat. Chirurg. Lib. 7. Obs. 12. Schol.* recommends the calcin'd *Chalcitis* for drying Ulcers. At present torrefy'd *Chalcitis* is an Ingredient in the *Theriaca Andromachi*, and in the *Emplastrum*

Diachalciteus Galeni, which is also call'd *Diapalma*. But, because the *Chalcitis* is not generally known, the Moderns, for the most part, use white Vitriol, either calcin'd or crude, or the Vitriolum Martis, in its stead; which last *Schulzius*, in his *Blancardi Lexicon renovatum*, prefers for making the *Theriaca*. Whether the *Chalcitis* is a proper Ingredient in the *Theriaca*, is much disputed; but, in my Opinion, it is not necessary in that Composition, as will appear from considering what kind of Substance it properly is. *Matthioli ad Dioscor. Lib. 2. Cap. 78.* seems to have been the first who hinted at its true Origin, in the following Words: "It is obvious," says he, "to every one, from common Experience, that all Vitriol of every Kind, in Process of Time, degenerates into *Chalcitis*." For it is a Species of metallic Recrement, call'd *Atramentum Rubrum*, generated of the Pyrites soften'd in Water, which has Iron, either pure, or mix'd with Brass, associated with it, and which is continually more and more dissolv'd and divided till it appears friable. This Recrement consists of moist and aqueous Particles less temperate, and with a smaller Portion of Sulphur, or sulphureous Acid, than Vitriol. In Consistence and Colour it differs from *Sory* and *Misy*, is of an acrid, acid, and astringent Taste, of a penetrating nauseous Smell, and diffuses an ungrateful Odour. From it are often obtain'd, in the Smelting-houses, Brass, *Cadmia*, *Pompholyx*, *Spodium*, and *Diphryges*. That Species of *Chalcitis* is by some esteem'd the most genuine, which consists of beautiful purple-colour'd Pieces: But for Use 'tis no Matter of what Colour it is; for what is imported into France for Sale from *St. Christophers*, is, according to *Pomet*, of a greenish Colour, like that of imperfectly calcin'd Vitriol. According to the learned *Henckelius*, we ought rather to inquire after the Elixivation of the Vitriol, of what Nature it is, whether it partakes of Iron or Copper, that we may be the better able to judge for what medicinal Purposes it is most proper. Hence 'tis obvious, that they are in the right who call *Chalcitis* the *Colcothar*, or *Caput Mortuum* of Vitriol; as also those who class it among the vitriolic Minerals, or crude and impure Vitriols. Hence the Reason is also obvious, why it is by some accounted a Species of Vitriol, and why *Boerhaave* calls it *Vitriolum Rubrum*, because, for Instance, it is a Composition of the Acid of Sulphur and Iron, in which there is, perhaps, a small Admixture of Brass. But it is more properly call'd the *Colcothar* of Vitriol than entire and perfect Vitriol, because it wants a crystalline Form.

The *Misy* is thus distinguish'd:

Misy *Dioscoridis*. *Misy*, Offic. Matth. 1365. Worm. 26. Aldrov. Mus. Metall. 341. Charlt. Foss. 11. Kentm. 15. Dale.

The choicest *Misy* comes from *Cyprus*, resembles Gold, is of a hard Substance, and, when broken, glitters like Gold, and shines with a Star-like Splendour.

It is calcin'd in the same Manner, and has the same Virtues, as *Chalcitis*, only *Misy* produces no *Pforicon*: As to their Qualities, *Misy* and *Chalcitis* differ only with respect to Intensity and Remission. The *Egyptian Misy* is prefer'd for its Strength, but is far inferior to the *Cyprian* in its ophthalmic Virtues. *Dioscorides, Lib. 5. Cap. 117.*

Geoffroy says it seems to be nothing but an Efflorescence of *Chalcitis*.

The *Sory* is thus distinguish'd:

Sory *Dioscoridis*. *Sory*, Offic. Matth. 1365. Worm. 26. Aldrov. Mus. Metall. 341. Charlt. Foss. 11. Kentm. 15. Dale.

Some have mistaken *Sory* for *Melanteria*; but they are of different Kinds, tho' not much unlike: But *Sory* is the stronger-scented, and creates a Nausea. It is produc'd in *Egypt*, and some other Countries, as *Africa*, *Spain*, and *Cyprus*; but the *Sory* which bears the highest Price is what comes from *Egypt*, and, when broken, appears of a blacker Colour, is full of Perforations, of a fattish Substance, astringent, of a strong Smell and Taste, and subverts the Stomach. That *Sory* which does not sparkle like *Misy* when it is broken in Pieces, is reckon'd of another Kind, and of little Virtue.

It is calcin'd, and has the same Virtues, as the *Misy* and *Chalcitis*. Put into a hollow Tooth, it eases the Pain thereof; it also fastens loose Teeth. Infused in Wine, it helps the Sciatica; and clears the Skin of Pimples, if rub'd thereon with Water. It is an Ingredient also in Medicines which make the Hair black. Generally speaking, this and almost all other Drugs are stronger before they are calcin'd than afterwards, except Salt, Lees of Wine, Nitre, Quick-lime, and the like, which are of little Efficacy when crude, but have their Virtues much improv'd by Calcination. *Dioscorides, Lib. 5. Cap. 119.*

Geoffroy says the *Sory* of the *Greeks* is a fossil Substance, thicker and more compact than *Chalcitis*, which emits Sparks by Attrition, and is of a spongy Texture, full of Holes, of a viscid Texture, black Colour, astringent, nauseous Taste, and of a strong hurtful Smell. This Description agrees very well with a Substance which the *Turkish* Women make use of to take off Hairs from their Bodies, call'd by them *Rufina*, which is describ'd by *Bellonius* to be a Fossil, almost like Excrement in Appearance,

Appearance, but lighter, and of a black burnt Colour like Pitch, found in some Mines in *Gallo-Græcia*. The Way of using it is this :

They reduce it to a fine Powder, and, mixing with it an equal Quantity of Quick-lime, they macerate it in Water, in an earthen Vessel. When the Women are to go into the Bath, they lay it on such Parts as they want to have smooth, and let it remain for about as long as is requir'd to boil an Egg. Then, finding by the Touch, that the Hairs are loosen'd, and ready to fall off, they wash the Part with warm Water, and the Paste and Hairs come off together. Our Barbers use Orpiment and Quick-lime for the same Purpose. *Geoffroy*.

The Melanteria is thus distinguish'd :

Melanteria Dioscoridis, *Melanteria*, Offic. Math. 1365. Worm. 26. Aldrov. Mus. Metall. 341. Charlt. foss. 11. *Melanteria*, *Atramentum nigrum*, Offic. Schw. 385. *Atramentum nigrum*, seu *sutorium*, *Græcis Melanteria*, Kentm. fol. 14. Dale.

Melanteria is sometimes found in the Entrance of Copper-mines, where it concretes like Salt. Another Sort, which has an earthy Quality, is gathered from the uppermost Surface of these Mines. There is also a fossile Kind found in *Cilicia*, and in some other Countries.

The best *Melanteria* is of the Colour of Sulphur, smooth, equable, pure, and which, touch'd with Water, immediately turns black. It has the same caustic Quality as Misy. *Dioscorides*, Lib. 5. Cap. 118.

All these fossile Substances are now rarely found in Apothecaries Shops, being to be had no-where else than in *Cyprus*, *Asia Minor*, or *Egypt*. They are caustic, and burn to an Eschar, and are, in some degree, astringent. *Chalcitis* was us'd in the Theriaca in *Andromachus's* Time ; but, as it can seldom now be had, Colcothar, or Vitriol calcin'd to a Redness, is substituted for it. *Geoffroy*.

CHALCOS, χαλκός. Brass. See *Æs*.

CHALCUS, χαλκός. A Weight of about two Grains, the same as *ÆREOLUM*.

CHALCUTE. Burnt Brass. *Rulandus*.

CHALEPOS, χαλεπός. Difficult, dangerous.

CHALICRATON. A Mixture of Wine and Water, so call'd from χαλός, an old Word which imports pure Wine, and κερδννυμι, to mix.

CHALINOS, χαλινός. That Part of a Bridle which is put into the Mouth of a Horse ; but it is us'd to express that Part of the Cheeks, which on each Side is contiguous to the Angles of the Mouth.

CHALYBS. Properly Steel, but us'd in Medicine to signify Iron ; for Steel, that is, Iron harden'd, is not so proper for medicinal Uses as Iron itself. *Sydenham* even says, he was inform'd, that the Ore of Iron, as taken out of the Mine, was more effectual in the Cure of Distempers than Iron itself, which I have some Reason to believe to be true. Steel, then, properly so call'd, is of no farther Use in Medicine, than as it affords Chirurgical Instruments.

CHAMA, Offic. Charlt. Exer. 65. Bellon. de Aquat. 403. *Ab altero tantum latere ferè naturaliter hiantibus*, List. Hist. Conch. 3. n. 258. *Chama, ut nomine Glycymerides magna, hoc est, Chama magna dulcis*, Bonan. 106. n. 59. *Chama Glycymeris*, Aldrov. de Exang. 473. Rondel. 2. 13. Jonf. Exang. Tab. 14. Gefn. de Aquat. 71. BASTARD-COCKLE.

It is found in the *Mediterranean* Sea. *Dioscorides* says, that the Broth of this and other such Shell-fish, made by boiling them in Water, is laxative, and keeps the Belly open : He adds, that it is usually taken with Wine.

CHAMÆACTE, from χαμά, upon the Ground, and ἀκτὴ, the Elder, Dwarf-elder, or Danewort. See *SAMBUCUS*.

CHAMÆBALANUS Leguminosa is the *Lathyrus* ; *arvensis* ; *repens* ; *tuberosus*. See *LATHYRUS*.

CHAMÆBATOS. The Dewberry. The same as the *Rubus* ; *repens* ; *fructu cæso*. See *RUBUS*.

CHAMÆBUXUS. A Name for the *Polygala* ; *frutescens* ; *folio Buxi* ; *stere maximo*. See *POLYGALA*.

CHAMÆCEDRYS. The *Abrotanum Fœmina*. *Blancard*.

CHAMÆCERASUS. Upright Honeysuckle.

The Characters are ;

The Calyx is thin, long, and narrow ; consists of two Leaves, in the Middle of which is the Ovary. The Flower is monopetalous, tubulous in the lower Part, and bilabiated at the upper ; its upper Lip multifid, the lower like a simple Tongue ; It is seated on the Ovary ; sometimes two belonging to one Ovary ; and is furnish'd with five Stamina. The Ovary is sometimes double on one Pedicle, shooting forth a long Tube between every Floscule ; and at last forms soft Berries, full of flattish and roundish Seeds. *Boerhaave Index alter*.

VOL. II.

Boerhaave mentions three Species of this Tree.

1. *Chamæcerasus* ; *Alpina* ; fructu gemino, rubro, duobus punctis notato. *C. B. P.* 451. THE GREATER UPRIGHT RED-BERRY'D HONEYSUCKLE.

2. *Chamæcerasus* ; *montana* ; fructu singulari, cœruleo. *C. B. P.* 451. THE UPRIGHT BLUE-BERRY'D HONEYSUCKLE.

3. *Chamæcerasus* ; *dumetorum* ; fructu gemino, rubro. *C. B. P.* 451. THE UPRIGHT RED-BERRY'D, OR FLY HONEYSUCKLE. *Boerhaave's Index alter Plantarum*, Vol. 2.

They are all topiarian Plants, and not of any Use in Medicine, that I know of.

CHEMÆCISSUS. Ground-ivy. See *CHAMÆCLEMA*.

CHAMÆCISTUS. Several Species of the *Helianthemum* are call'd by this Name. See *HELIANTHEMUM*.

CHAMÆCLEMA.

The Characters are ;

The Root is very creeping, and the Stalks run into lesser Shoots ; the Leaves are thick, furrow'd, roundish, and crenated ; the Galea erect, roundish, bifid ; the Beard trifid. The Flowers grow on branched Pedicles, on both Sides of the Joints of the Stalks. *Boerhaave Index alter*.

Boerhaave takes notice of four Plants under this Name.

1. *Chamæclema* ; *vulgaris*. *Boerh. Ind. A.* 172. *Hedera terrestris*, *Chamæcissus*, Offic. Merc. Bot. 1. 41. *Phyt. Brit.* 57. *Hedera terrestris*, Ger. 705. Emac. 856. *Raii Hist.* 1. 567. Mer. Pin. 60. *Hedera terrestris vulgaris*, *C. B. Pin.* 306. Park. Theat. 676. Hist. Oxon. 3. 409. *Chamæcissus*, five *Hedera terrestris*, J. B. 3. 855. Chab. 649. Buxb. 64. *Chamæcissus*, Rivin. Rupp. Flor. Jen. 188. *Calamintha humilior folio rotundiori*, Tourn. Inst. 194. Elem. Bot. 163. Dill. Cat. Giff. 45. *Raii Synop.* 3. 243. GROUND-IVY.

Ground-ivy has a great many small creeping stringy Roots, from which spring square weak Stalks, which, from their lower Parts, take Root again by small Fibres. The Leaves grow in Pairs opposite to one another, being, as well as the Stalks, somewhat rough and hairy ; they are roundish, hollow'd in next the Stalk, and indented about the Edges. The Flowers grow three or four together among the Leaves, labiated and galeated ; the Galea cut in two, and the Lip into four Parts : They are of a bluish Colour, longish and hollow, set in a short Calyx, which includes four small long Seeds. It grows every-where in the Hedges and shady Places, and flowers in April. The whole Herb is us'd.

It is accounted a very good pectoral Herb, being much used for Coughs, Shortness of Breath, and other Disorders of the Lungs ; for which, a Tea made of the Leaves, and a Syrup of the Juice, is very beneficial. It is frequently put into Ale, which it refines and clarifies ; and great Quantities of it are drank in Town, under the Name of Gill-ale, being reckon'd antiscorbutic and aperitive, and good to provoke Urine, and cleanse the Ureters. Some Authors commend it, steep'd in Brandy, as of great Service against the Colic.

The only officinal Preparation is a Syrup of the Juice, which is left out of the last Dispensatory. It is made by boiling up the depurated Juice with Sugar. This *Boerhaave* recommends much in the Chin-cough, Spitting of Blood, and against making bloody Urine. *Miller's Bot. Off.*

Pitcairn says, that Ground-ivy excels all Vegetables as a Remedy for a Consumption.

The Leaves of *Ground-ivy* are bitter, a little aromatic, and give hardly any Tincture of Red to blue Paper ; so that it is probable its Salts may, in some measure, resemble vitriolated Tartar. This Salt is mix'd with a very little Sal Ammoniac, but with a great deal of Sulphur and Earth. It yields no concreted volatile Salt by Chymical Analysis, but a little urinous Spirit : All the rest which is obtain'd from it is Acid, Alcaline, Oil, and Earth ; and these two last Parts are found in it in great Quantity.

Ground-ivy is very aperitive, deterfive, and vulnerary. *Camerarius* and *Cæsalpinus* commend it very much for provoking Urine, and expelling the Stone. *Simon Paulli* gave its Powder to drink, mixed with an equal Quantity of Sugar, and steeped in the distil'd Water of the same Plant. It consolidates Ulcers also. It is given in Broths and Decoctions to those that are phthisical, or make purulent Urine. *Lobel* made use of it to prevent the Gout, and open the Bowels. An Extract, a Conserve, and a Syrup, are prepared, by some, of the Leaves and Flowers of this Plant. *Martyn's Tournef.*

2. *Chamæclema* ; minus. LESSER GROUND-IVY.

3. *Chamæclema* ; minus ; flore purpureo.

4. *Chamæclema* ; minus ; folio variegato, aureo.

CHAMÆCRISTA. A Name given to two aschynomemous Plants taken notice of by *Ray* from *BREYNEUS*. The first is a Native of *Brasil*, and is called *Chamæcrista Pavonis Brasiliana*, *siliqua singulari*. The second grows in *Caracas*, and is call'd *Chamæcrista Pavonis Americana*, *siliqua multiplici*. I find no medicinal Virtues attributed to either of them.

CHAMÆCYPARISSUS. A Name for the *Abrotanum* *Fœmina*, Lavender Cotton. See ABROTANUM.

CHAMÆDAPHNE. A Name for the *Laureola*. According to *Boerhaave*, *Chamædaphne* is the *Laurus Alexandrina*, which he makes a Species of *Ruscus*.

CHAMÆDROPS, in *Paulus Ægineta* and *Oribasius*, is the same as CHAMÆDRYS, which see.

CHAMÆDRYTES, χαμαιδρύτης ὄνυξ. Wine which has had Germander (*Chamædrys*) infus'd in it. *Dioscorides*, Lib. 5. Cap. 51.

CHAMÆDRYS.

The Characters are ;

It has an herbaceous Appearance ; the Leaves resemble those of Oak, and are small and thick ; the Calyx is tubulated ; the Flower is like that of the TEUCRIUM.

Boerhaave takes notice of seven Sorts of the *Chamædrys*.

1. *Chamædrys* ; major ; repens. C. B. P. 248. *Dod. p. 43. M. H. 3. 422.* THE GREATER CREEPING GERMANDER.

2. *Chamædrys* ; minor, repens, C. B. P. 148. *Hist. Oxon. 3. 422. Tourn. Inst. 205. Boerb. Ind. A. 182. Chamædrys, Triffago, Offic. Chamædrys, Chab. 427. Chamædrys vulgaris, Park. Theat. 104. Raii Hist. 1. 527. Chamædrys minor, Ger. 530. Emac. 656. Chamædrys vulgò vera existimata, J. B. 3. 228 Elem. Bot. 173. GERMANDER.*

Germander has a spreading creeping Root, which sends forth several square hairy Branches, scarce a Foot high, having two small Leaves at every Joint, on short Foot-stalks, about an Inch long, and half an Inch broad, cut in with several Sections, something resembling in Shape the Leaves of an Oak, somewhat hard and crumpled, green above, and hoary white underneath. The Flowers grow towards the Tops of the Branches among the Leaves, whorle-fashion, of a purplish-red Colour : They are labiated, the Lip turning upwards ; but they want the Galea, having in its Place several Stamina standing erect. The Seeds grow four together in the hairy five-pointed Calyces. It grows with us only in Gardens, and flowers in June and July. The Leaves and Tops are used.

Germander is an Herb of warm thin Parts, opening Obstructions of the Liver, Spleen, and Kidneys, and of Use in the Jaundice, Dropsy, and Stoppage of Urine. It is a good Emmenagogue, and is commended by some as a Specific for the Gout, Rheumatism, and Pains in the Limbs. *Miller's Bot. Off.*

The Leaves of this Plant are bitter and aromatic. They give no Tincture of Red to blue Paper, which shews, that they contain Principles different from those of the small Centaury. The Salt of the *Germander* is not different from that which is natural in the Earth, which is a Mixture of marine Salt, Nitre, and Sal Ammoniac. It is acrid, very bitter, and very aperitive. It is probable, that what is found in this Plant has lost its Acrimony by the Mixture of a great deal of essential Oil, which renders the *Germander* aromatic. It is febrifugous, stomachic, aperitive, and diaphoretic. They infuse, cold, over Night, a Handful of its Leaves in a Glass of White-wine, with half a Dram of vegetable Salt ; and give the Infusion to drink, fasting, for the Green-sickness. They prepare an Extract of the Leaves and Flowers, and give a Dram of it, with a Drop or two of the Oil of Cinnamon, and make an Infusion of the Leaves like Tea, principally for the Gout and Sciatica. They enter the Powder of the Prince of *Mirandola*, which passes for a great Specific in such Diseases. The Composition is as follows :

You must dry, and reduce to a very fine Powder, an equal Quantity of the Leaves of *Germander*, Ground-pine, small Centaury, the Roots of the great Centaury, round Birthwort, and Gentian. Mix all these Powders, and keep them in a dry Place, and in a Box close shut, after having sifted them thro' a Sieve of Silk. Infuse a Dram of it all Night in half a Glass of good old Wine, or lean Broth. It is better to drink it in Substance, than to throw away the Feces, and drink only the simple Infusion.

They pretend, that this Powder must be used for a whole Year, every Day, either Evening or Morning, or every other Day, or, at least, once a Week. The Patient must take nothing else till three or four Hours after this Medicine : He must be purged, by the Advice of a Physician, in the Beginning of the Seasons, or oftener, if it is necessary : He must avoid Raguish, Milk Diet, and violent Exercises. This Powder also is excellent for intermitting Fevers, for the Dropsy, and for all Diseases where there are great Obstructions in the Bowels. The *Germander* is used in the *Venice Treacle*, *Hiera Diacolocynthis*, Syrup of Mugwort, hydragogic Syrup of Mr. *Charas*, aperitive and cachectic Syrup of the same Author, compound Oil of Scorpions, Unguentum Martiatum, and in the Mundificative of Smalage. *Martyn's Tournesfort.*

3. *Chamædrys* ; foliis laciniatis. *Lob. Obs. 209.*

4. *Chamædrys* ; folio pulchrè laciniato, majore, odorato ; flore rubello. *b.*

5. *Chamædrys* ; major ; repens ; flore albo. C. B. P. 248. *Var.*

6. *Chamædrys* ; Hispanica ; tenuifolia ; multiflora. *H. R. Par. T. 205. H. R. D.*

7. *Chamædrys* ; Hispanica ; tenuifolia ; latiori folio ; multiflora. *H. R. Par. H. R. D. Boerhaave's Index alter Plantarum, Vol. 1.*

CHAMÆDRYS PALUSTRIS, ALLIUM REDOLENS. See SCORDIUM.

CHAMÆDRYS, FRUTICOSA, SYLVESTRIS, MELISSÆ FOLIO. See SCORDIUM.

CHAMÆDRYS FRUTESCENS. See TEUCRIUM.

CHAMÆDRYS SPURIA ANGUSTIFOLIA. See VERONICA.

CHAMÆDRYS SPURIA LATIFOLIA. See VERONICA.

CHAMÆFICUS. The *Ficus humilis*, C. B. P. See FICUS.

CHAMÆFILIX is the *Filix Marina Anglica*, *Parkinson.*

CHAMÆGEN'STA is the *Genistella* ; herbacea ; sive *Chamæspartium*. J. B.

CHAMÆIASME Alpina is the *Sedum Alpinum* 4 *Clusii*. Ger. Emaculat.

CHAMÆIRIS. A Name for several Species of the IRIS, which see.

CHAMÆITEA is the *Salix pumila angustifolia recta*. The strait Dwarf-willow with narrow Leaves. *Park.*

CHAMÆLÆA. Widow-wail.

It has the Appearance of a Shrub, and the Leaves are like those of the Olive-tree ; the Calyx is short, consists of one Leaf, and is indented in three Places ; the Flower tripetaloidal, arising from the Base of the Ovary, whence three Stamina arise, in the Spaces between the Petals. The Ovarium, in the Bottom of the Calyx, is furnish'd with a long Tube, is of a triangular Shape, and, when ripe, consists of three Berries. The Seed is oblong. *Boerhaave, Index alter.*

Boerhaave mentions but one Species of this Plant.

Chamælæa ; triccocos. C. B. P. 462. *J. B. 1. 584. Chamælæa. Dod. p. 363. H. Boerhaave's Index Plantarum, Vol. 1.*

Ray informs us, that the Virtues of the *Chamælæa* are, in a great measure, the same with those of the *Laureola*, or Spurge-laurel ; but, as it is dubious whether it is really the *Chamælæa* of the Antients, we shall not ascribe to it the Virtues which *Dioscorides* and *Pliny* attribute to that Plant. But, says *John Bauhine*, the Juice of the whole Plant is much used at present, especially at *Montpelier*, where, according to *Rondeletius*, the Apothecaries keep it expressed and inspissated ; in imitation of whom I have often, with great Success, exhibited one or two Drams of the recent inspissated Juice by itself, and oftener in Conjunction with other hydragogue Cathartics. But it does not produce so large a Discharge of the peccant Matter, nor operate with such a Degree of Violence, as the Spurge-laurel, the *German Mezereon*, and the *Gratiola*, generally do. Sometimes it operates little, or none at all, except when mix'd with some mild and gentle Cathartics. When exhibited to Children, it neither excites Gripes nor Vomiting, but only discharges Water and Serum. When apply'd to the Pubes and Abdomen of dropsical Patients, no Medicine is more effectual for provoking Urine ; in which manner *Rondeletius* used it with Success.

The *Thymelæa* ; *Lauri folio deciduo* ; sive *Laureola fœmina*, *Mezereon*, or Spurge-olive, is sometimes also call'd *Chamælæa*. See THYMELÆA.

The Names of these Plants were confounded in the Days of *Dioscorides*.

CHAMÆLÆAGNUS. A Name of the *Myrtus Brabantica*, or *Gale*. See GALE.

CHAMÆLAITES Vinum, χαμαιλαιτης ὄνυξ. *Dioscorides, L. 5. C. 79.* Wine impregnated with the *Chamælæa*. It is not certain what the *Chamælæa* of *Dioscorides* is.

CHAMÆLARIX. The Name of a Plant which grows at the Cape of Good Hope. *Raii Hist. Plant.*

CHAMÆLEON, Offic. Charlt. Exer. 38. *Caii de Animal. 80. Gesn. de Quad. Ovip. 3. Bellon. de Aquat. 55. Ejusd. Obs. ed. Clus. 125. Chamæleon cinereus verus, Aldrov. de Quad. Ovip. 670. Jons. de Quad. 140. Chamæleo, Raii Synop. A. 276. THE CHAMÆLEON.*

The Gall, Heart, and the Animal itself, are in Use. The Gall removes Suffusions. *Marcellus*. *Pliny* recommends the Heart against Quartans, and *Trallian* recommends it against Epilepsies and the Gout. *Dale.*

In Botany, the *Chamæleon Albus* is the *Carlina*, *acaules*, *magna Flore*. See CARLINA. The *Chamæleon Niger* is the *CARTHAMUS*, (Bastard-saffron) which see.

CHAMÆLEUCE is, according to *Blancard*, the *Tuffilago*, Colt's-foot.

CHAMÆLINUM. A Name for the *Linum Catharticum*, Purging Flax. The *Knuwel* ; folio *Alfines* ; glabro ; strobili plurimis, is call'd, by *Tournesfort*, *Chamælinum vulgare*.

CHAMÆMALUS. A kind of dwarf Apple-tree, call'd by *Gerard* the Paradise-apple.

CHAMÆMELUM.

The Characters are ;

The

The Root is fibrous, the Calyx squamous, and expanded with a manifold Series of Leaves. The Flower is generally radiated, seldom naked, with radiated Petals, for the most part white, and a yellow Disk. The Leaves are finely indented. In other things this Plant resembles the *Bellis*. *Boerhaave, Index alter.*

The last-quoted Author mentions fourteen Sorts of Chamomile.

1. *Chamæmelum*; vulgare; *Leucanthemum* *Dioscoridis*. *C. B. Pin.* 135. *Cod. Med.* 34. *Tourn. Inst.* 494. *Elem. Bot.* 395. *Boerb. Ind. A.* 195. *Hist. Oxon.* 3. 35. *Dill. Cat. Giff.* 78. *Rupp. Flor. Jen.* 139. *Vaill. Bot. Par.* 34. *Chamæmelum vulgare*, *Offic. Park. Theat.* 85. *quoad iconatem*, *Buxb.* 65. *Chamæmelum*, *Ger.* 615. *quoad etiam iconatem*, & *Emac.* 753. *Raii Synop.* 3. 189. *Chamæmelum vulgare amarum*, *J. B.* 3. 116. *Raii Hist.* 1. 355. *Chamæmelum majus foliis tenuissimis, caule rubente*, *Hort. Monsp.* *Chamæmelum elatius, foliis obscure virentibus, semine nigro*, *Pluk. Almag.* 97. *Anthemis fve. Chamæmelum*, *Chab.* 362. *Chamomilla Officinarum*, *Volck. Flor. Nor.* 100. WILD OR DOG'S CHAMOMILE.

It is found in uncultivated Places, and amongst Corn, and flowers in *June*. The Herb and Flowers are used. They are believed to be possessed of the same Virtues with the second Species of Chamomile. *Dale.*

This Plant is bitter, aromatic, and gives a deep red Colour to blue Paper. It seems to contain some *Sal Ammoniac*, loaded with a great deal of Acid, and involv'd by a great deal of Sulphur and Earth. It is aperitive, diuretic, lenifying, and febrifugous. The Powder of its Flowers were us'd in *Dioscorides's* Time to cure intermitting Fevers. *Riverius* prescrib'd it on the same Occasions; and it is still the common Febrifuge of the *Scotch* and *Irish*. The Infusion of its Tops, with those of *Melilot*, gives great Ease to such as are tormented with a nephritic Colic, and Retention of Urine. It asswages the acute Pains of Women newly brought to Bed. *Simon Paulli* recommends a strong Infusion of Chamomile-flowers in Wine, taken by Spoonfuls, while a Hog's Bladder, fill'd with a Decoction of the Herb, is applied hot, and renew'd as Occasion requires, in pleuritic Cases. It is also used in lenifying and resolving Clysters, Fomentations, Cataplasms, and Baths, for the Gout, Sciatica, and the Piles. The Oil of Chamomile, made by Infusion, is very good in the same Cases. A Liniment of an equal Quantity of Chamomile and Oil of *St. John's-wort*, with camphorated Spirit of Wine, in which a twice-folded Cloth has been dipt, and applied very hot to the affected Part, is good in Rheumatisms. *Martyn's Tournefort.*

2. *Chamæmelum*; nobile; sive *Leucanthemum*; odoratius. *C. B. P.* 135. *Tourn. Inst.* 494. *Elem. Bot.* 395. *Boerb. Ind. A.* 109. *Dill. Cat. Giff.* 78. *Rupp. Flor. Jen.* 139. *Chamæmelum*, *Offic. Ger.* 616. *Emac.* 755. *Mer. Pin.* 25. *Park. Parad.* 289. *Chamæmelum vulgare*, *Mer. Bot.* 1. 28. *Phyt. Brit.* 26. *Park. Theat.* 85. *Pharm. Edinb.* 6. *Chamæmelum Officinarum*, *Ad. Reg. Par. An.* 1720. p. 317. *Chamæmelum nobile*, *Buxb.* 65. *Chamæmelum odoratissimum, repens flore simplici*, *J. B.* 3. 118. *Raii Hist.* 1. 353. *Synop.* 3. 185. *Hist. Oxon.* 3. 35. *Chamæmelum Romanum seu Chamæmelum odoratissimum repens flore simplici*, *Chab.* 362. *Chamæmelum vulgare odoratum*, *Schw.* 47. *Chamomilla Romana Officinarum*, *Buxb.* 65. CHAMOMILE.

The Chamomile which is used in the Shops seldom rises very high, but creeps upon the Ground, with fine winged Leaves, cut into many thin slender Divisions, among which grow the Flowers, upon long Foot-stalks, not growing together, but here-and-there one, consisting of broad white Petals, set about a yellow fistular Thrum, in which lie small flat Seeds. The Root is composed of small Strings, creeping and spreading in the Ground. The Leaves and Flowers have a strong, not unpleasant Scent, and a very bitter Taste. It grows upon Heaths and Commons, flowering in *June* and *July*. We have a Species of this, which is planted in Gardens, and bears double Flowers, which, because of their Beauty and Largeness, are mostly used in the Shops; tho' many are of Opinion, that the single Flowers are stronger, and of more Virtue, having a greater Quantity of the yellow Thrum, in which lies the Strength of the Plant.

Chamomile is a Plant of many Virtues, being stomachic, hepatic, nervine, emollient, and carminative; it strengthens the Stomach and Bowels, helps the Colic, jaundice, Stone, and Stoppage of Urine. It is good against quartan and other Agues. Outwardly it is used in Glysters, in Baths, and Semiscupia for the Stone, and Stoppage of Urine; also in Fomentations for Inflammations and Tumors. Outwardly applied hot to the Sides, it helps the Pains thereof. The Herb and Flowers are used.

Officinal Preparations are, the simple Water, the *Aqua Chamæmeli composita*, the distill'd Oil, and the Oil by Infusion or Decoction. *Miller's Bot. Off.*

Morton, speaking of intermitting Fevers, uses these Words: "Doctor *Elisba Coysb* often protested to me, with the utmost

"Appearance of Sincerity, that he had found Chamomile-flowers, reduc'd to a fine Powder, exhibited in a proper Vehicle, and used at due Intervals, as successful and infallible, in curing these Disorders, as the *Peruvian Bark* itself. Whether the Author's Assertion was true or false, let others judge; as for my own Part, I never made an Experiment of the Efficacy of this simple Medicine; but by means of it, in Conjunction with other Ingredients, I, in two Days time, perfectly cured the Son of one Mr. *Barnard*, a Lawyer of London, of that Species of Fever call'd Hemitritæa, after I had not been able to free him from one Paroxysm of the Disorder by a long and copious Use of the *Peruvian Bark*. By means of the same Secret, exhibited at proper Intervals, I, in the Space of two Days, cured one Mrs. *Gumley*, an old Gentlewoman, labouring under a tertian Fever, and who had made a long, but fruitless, Trial of the Virtues of the *Peruvian Bark*. By the same Medicine, and in the same Time, I also perfectly, and without a Relapse, cured the Wife of Mr. *Royston*, the King's Bookseller, tho' almost seventy Years of Age, after she had for two Years laboured under an intermitting Fever, which was sometimes a tertian; sometimes a quartan, and sometimes that Species call'd Hemitritæa. I must confess, that I do not remember to have made Trial of this Medicine upon any other Patients labouring under intermitting Fevers; for except in these three Instances, I cannot call to mind any Patients in whom the *Peruvian Bark* did not answer my Expectations. I therefore thought it criminal and indecent to make wanton Experiments upon Mankind, by preferring an uncertain and little known Remedy to one whose Virtues were approved, and sufficiently ascertain'd. I shall, however, for the sake of the Curious, give the Formula of this Medicine, that they may, if they have a mind, make a Trial whether it is an infallible Febrifuge; or, at least, whether, as it happen'd in my Practice, it is able to supply the Defects of the *Peruvian Bark*. The Powder itself is thus prepar'd:

"Take of the Flowers of Chamomile, one Scruple, more or less according to the Age of the Patient; of diaphoretic Antimony, and Salt of Wormwood, each half a Scruple: Mix up into a Powder, to be taken in a Draught of Posset-drink, or any temperate Jalap; or it may be exhibited in the Form of a Bolus, with Syrup of Clove-gilly-flowers; or it may be reduced to the Form of Pills with Mucilage of Gum Tragacanth, and exhibited every sixth Hour for two or three Days." *Morton's Plurilogia.*

No Simple in the *Materia Medica* is possess'd of a Quality more friendly and beneficial to the Intestines than Chamomile-flowers; for which Reason I have, instead of all other Ingredients, hitherto, with great Success, prescrib'd Chamomile-flowers for Clysters, in all Disorders which indicate their Use; adding, when there is a Necessity for it, Oil of sweet Almonds; and, for Patients of the poorer Sort, Linseed-oil, or Oil of Turnep-seeds; or, for evacuating the Fæces, a sufficient Quantity of common Salt, which, for its stimulating Quality, is of more Service than the whole Train of laxative and purgative Extracts or Electuaries, which may be very well left out of Clysters. These Flowers make an excellent Cataplasm for discussing, softening, and maturing Abscesses. When boil'd in Milk, and put into a Bladder, either alone, or in Conjunction with the Flowers of Elder, Mallows, Yarrow, or Saffron, they are highly efficacious in alleviating Pains, and softening Tumors, if the Bladder is applied to the Part affected. I have learn'd, from long Practice and Experience, that Brandy distill'd from the Tops of Yarrow, Chamomile-flowers, Anise-seeds, and *Ethiopic Cumin*, is of more Efficacy, in discussing Flatulencies, than any of the other so much extol'd carminative and antispasmodic Preparations. *Hoffman de Præstantia Remediorum Domestica.*

For the Method of making the simple and compound Chamomile-water, see the Article AQUA.

Boerhaave represents the simple Water of Chamomile, prepared by repeated Cohobations, as effectual in curing tertian Agues.

The *Oleum Chamæmelinum*, in the *London Dispensatory*, is directed to be made by

Infusing four Ounces of bruised Chamomile-flowers in a Pound of Olive-oil, in the Sun: The Oil must then be press'd out, and fresh Flowers added, infused, and then press'd out again; and this must be repeated once more.

This Oil is esteem'd a good Discutient, and is used externally in that Intention. It is also a frequent Ingredient in Clysters.

The same Oil is directed to be made in a somewhat different manner in the *Edinburgh Dispensatory*.

Take

Take a Pound of the bruised Flowers of Chamomile, and three Pints of ripe Olive-oil: Put them into a Glass Vessel, or one of glaz'd Earth; close it well, and expose it to the Heat of the Sun for fifteen Days; then add four Ounces of the Juice of Chamomile; and boil the Whole gently, till the Juice is evaporated; and afterwards force out the Oil with a Press.

For the Way of making chymical Oil of Chamomile, see OLEUM.

Boerhaave says, the essential Oil of Chamomile, made into Pills with a Bit of Bread, and given two Hours before Meals, after fasting a considerable time, is a certain Cure for the Worms.

3. Chamæmelum; nobile; flore multiplici. C. B. P. 135. CHAMÆMELUM FLORE PLENO, Park. Theat. 85. Parad. 290. Chamæmelum Anglicum flore multiplici, Ger. 616. Emac. 755. Chamæmelum repens odoratissimum perenne flore multiplici, J. B. 3. 119. Raii Hist. 1. 353. Chamæmelum Romanum, Volk. 101. Chamæmelum Romanum sive nobile, flore multiplici, Chab. 362. DOUBLE CHAMOMILE.

This is cultivated in Gardens, and is said to be possess'd of the same Virtues as the preceding.

4. Chamæmelum; Leucanthemum; Hispanicum; magno flore. C. B. P. 135. M. H. 3. 35. C. B. Pin. in Prodr. 70. a. SPANISH CHAMOMILE, WITH LARGE FLOWERS.

5. Chamæmelum; Chium; vernum; folio crassiori; flore magno. T. C. 37. SPRING THICK-LEAVED CHAMOMILE OF CHIO, WITH LARGE FLOWERS.

6. Chamæmelum; inodorum. C. B. P. 135.

7. Chamæmelum; fœtidum. C. B. P. 135. Tourn. Inst. 494. Boerb. Ind. A. 109. Dill. Cat. Giff. 122. Raii Synop. 92. Rupp. Flor. Jen. 139. Cotula fœtida, Offic. Ger. 617. Emac. 757. Park. Theat. 86. Raii Hist. 355. Chamæmelum caninum fœtidum, Schw. 47. Chamæmelum fœtidum, sive Cotula fœtida, J. B. 3. 120. Chab. 363. Chamæmelum annuum præcox fœtidum semine aurco, Hist. Oxon. 3. 36. MAY-WEED.

This Plant differs from Chamomile, in that it grows more erect. The Leaves are finer. The Flowers grow thicker together upon the Tops of the Stalks: Besides, it is an annual Plant, and has an unpleasant, strong, stinking Smell. It grows frequently among Corn, and in waste Places, and flowers in May and June.

This is a Plant but rarely used, tho' some Authors commend it as good against Vapours, and hysterical Fits. Mr. Ray says, it was sometimes made use of in scrophulous Cases. Miller's Bot. Off.

This Plant is acrid and bitter: It smells like Bitumen, and gives a very deep Tincture of Red to blue Paper; which seems to shew, that it contains a great deal more fetid Oil than the Chamæmelum vulgare. The Fomentations of May-weed are very good for the Vapours, according to Tragus. They use it at Paris to allwage the Pain of the Piles. Martyn's Tournefort.

8. Chamæmelum; marinum. J. B. 3. 122.

9. Chamæmelum; maritimum; incanum; folio Absinthii crasso.

10. Chamæmelum; Orientale; incanum; folio Millefolii. T. Cor. 37. H. EASTERN CHAMOMILE, WITH HOARY YARROW-LEAVES.

11. Chamæmelum; montanum; folio Absinthii; odore Parthenii. H. C. H.

12. Chamæmelum; Orientale; folio Absinthii. T. C. 37.

13. Chamæmelum; luteum; capitulo aphylo. C. B. P. 135. M. H. 3. 35.

14. Chamæmelum; maximum; Asiaticum; nudum; humifusum; folio crasso. Ind. 36.

15. Chamæmelum; Orientale; foliis pinnatis. T. Cor. 37. h. H. EASTERN CHAMOMILE, WITH PINNATED LEAVES.

16. Chamæmelum; Æthiopicum; lanuginosum. Breyn. Cent. 1. 73. M. H. 3. 36.

17. Chamæmelum; Æthiopicum; lanuginosum; flore luteo. a. ETHIOPIAN WOOLLY CHAMOMILE, WITH A YELLOW FLOWER.

18. Chamæmelum; nobile; sive Leucanthemum odoratius; nunquam florens.

Boerhaave's Index alter Plantarum, Vol. 1.

CHAMÆMESPILOS is the Crataegus; folio oblongo, serrato, utrimque virente. Boerb. Index alter, Pars 2.

The Chamæmespilus Gefneri is the Mespilus; folio subrotundo; fructu rubro. Ibid.

CHAMÆMORUS, Offic. Ger. 1090. Emac. 1273. Raii Hist. 1. 654. Synop. 3. 260. Vaccinia nubis, Ger. 1630. Emac. 1420. Chamæmorus Anglica, Park. Theat. 1014. Chamæmorus Vaccinia nubis, Ejusd. Cambro-Britannica sive Lancastrensis Vaccinium nubis, Ejusd. Chamærubus folio Ribes Anglica, C. B. Pin. 480. Jonsl. Dendr. 273. Rubus Alpinus hu-

milis Anglicus, Vaccinia nubis, id est, CLOUD-BERRIES, vulgo dictus, Pluk. Almag. 325. Rubus palustris humilis, Tourn. Inst. 615. Rubus Alpinus foliis Ribes, Rupp. Flor. Jen. 115. Rubo Idæo minori affinis, Chamæmorus, J. B. 2. 62. Chab. 110. KNOT-BERRIES, CLOUD-BERRIES.

This is a Shrub which grows in many Parts of Great Britain, on the very Summits of the Mountains, in a rotten and boggy Soil. The Leaf is like that of the Mallow, Mulberry, or rather, according to Ray, like that of the Currant-tree. The Fruit is somewhat like the Mulberry, or Raspberry, which is at first white and sour, but by Maturity sweet, but with a Degree of Tartness, and red, with a yellowish Cast.

Ray thinks the Chamæmorus Norvegicum Clusii, Park. to be the same Plant as the preceding. The Fruit is ripe in July and August.

The Inhabitants of Norway and Finland, says Hoierus, prepare every Year, after a coarse manner, an Electuary of this Fruit against the Scurvy. They boil the Berries by themselves, in an Earthen or Copper Vessel, to a moderate Consistence, without adding any Liquor; for the Fruit is so soft, and full of Juice, as not to require Irrigation by extraneous Liquids; tho' some, who are of nicer Palates than the rest, pour on it some Mead, which is highly coveted by these Northern People. After it is thus boil'd, they dispose of it in proper Vessels; and, to preserve it from being corrupted by the Air, pour over it melted Butter, which forms itself into a Covering. They are very careful to keep this in their Houses, and esteem it, as it really is, a noble and excellent Remedy against the Scurvy. It is almost incredible what surprising Cures are every Day perform'd by Help of this Medicine alone; and it must be confess'd, that neither Scurvy-grass, so much in Request hitherto, nor Brook-lime, nor Water-mint, nor Meadow-cresses, nor other Things of that Kind, which are so much extol'd by the Germans, deserve to be mention'd with it.

Some cure the Scurvy by a ridiculous, though successful Method, which is as follows: They expose the Patients in some neighbouring Island which abounds with the Chamæmorus; and, leaving them by themselves, never suffer them to return home before they have recover'd their Health. The Sick, thus left to shift for themselves, and yet desirous, as we may suppose, of Life, are obliged to feed on this Fruit, either as being the last Remedy which they can use for the Recovery of their Health, or to satisfy their Thirst, with which they are very much tormented; and, while they thus feed to Satiety, they infallibly recover in a few Days. In the Winter, when this Method cannot be used, they have recourse to their Electuary with the same Success, not confining themselves to any particular Dose or Regimen. Raii Hist. Plant.

There is another Species of this, call'd Chamæmorus altera Norvegica. J. B. Clus. Park.

CHAMÆNERION. A Name for several Sorts of the Lyfimachia, as the Lyfimachia, Chamænerion dicta, latifolia, C. B. ROSE BAY-WILLOW-HERB.

Lyfimachia, Chamænerion dicta, angustifolia, C. B. THE NARROW-LEAVED CODDED LOOSE-STRIPE.

Lyfimachia, Chamænerion dicta, Alpina, C. B. Park. THE MOUNTAIN CODDED LOOSE-STRIPE.

CHAMÆORCHIS is the Orchis; Lilifolia; minor; sabuletorum Zelandiæ, & Bataviæ. Boerb. Index A. Pars 2. P. 152.

CHAMÆPERICLYMENUM is the Chamæcerasus; Alpina; fructu gemino, rubro, duobus punctis notato. Boerb. I. A. Pars 2.

CHAMÆPEUCE. Dioscorides, L. 4. C. 127. mentions the χαμαιπεύκη, Chamæleuce, which his Translators call Chamæpeuce, for what Reason I cannot tell. The Chamæleuce is the Tussilago, Colt's-foot.

CHAMÆPITUINUM Vinum, χαμαιπιτύϊνον οίνον, Dioscorides, L. 5. C. 180. is Wine, in which the bruised green Leaves of the Chamæpitys have been infused. It excites Urine.

CHAMÆPITYS, χαμαιπίτυς.

The Characters are;

The Leaves are narrow and trifid; the Place of the Galea of the Flower is supply'd by little Teeth; the Beard, or lower Lip, is divided into three Parts, the middle Segment being again divided into two Parts: The Flowers grow in Whorles; but these consist of very few Flowers, one or two at most on each Side, dispersed here-and-there, in the Axe of the Leaves.

1. Chamæpitys; lutea; vulgaris; sive folio trifido. C. B. P. 249. Tourn. Inst. 208. Elem. Bot. 177. Hist. Oxon. 3. 424. Boerb. Ind. A. 183. Buxb. 67. CHAMÆPITYS, Iva arthritica, Offic. Chamæpitys sive Iva Moschata, Chab. 430. Chamæpitys Mas, Ger. 421. Emac. 525. Mer. Pin. 26. Chamæpitys, Iva Arthritica sive Moschata, Merc. Bot. 1. 28. Phyt. Brit. 27. Chamæpitys Officinarum, Rupp. Flor. Jen. 178. Chamæpitys vulgaris, Park. Theat. 283. Raii Hist. 1. 573. Synop. 3. 244. Chamæpitys vulgaris odorata, flore luteo, J. B. 3. 295. GROUND-PINE.

Ground-

Ground-pine has a long woody single Root, which strikes deep into the Earth, with many Fibres. It sends forth a great many Stalks, four or five Inches long, leaning towards the Earth, cover'd thick with Hairs: The Leaves stand so thick on the Stalks, two opposite to one another, that the Bottoms are hardly seen, the Tops of them being divided into three Parts: They are also very hairy. The Flowers are yellow and labiated, but have little or no Galea. They grow at the Joints, among the Leaves, set in Calyces that belly out round, each containing four Seeds. The whole Plant is of a strong resinous Scent; and the Stalks, being set thick with Leaves, appear like a small Pine, whence the Name.

It grows in fallow Fields, and chalky Grounds, particularly in *Kent*, in great Plenty; and flowers in *June* and *July*.

The Leaves of *Chamæpitys*, drank in Wine, for seven Days together, cure the yellow Jaundice: Drank forty Days together, in Hydromel, they cure the Sciatica. They are prescrib'd also for Distempers of the Liver, Difficulty of Urine, and as a Specific in Disorders of the Kidneys: They also help the Gripes. The Inhabitants of *Heraclea*, in *Pontus*, use this Herb as an Antidote for those who have drank the Decoction of *Aconitum*. The Decoction of the Herb, mix'd with *Polenta*, is made into a Cataplasm for the aforesaid Disorders. Pulveriz'd with Figs, and made into Pills, it purges by Stool. Taken with Honey, Squama *Aëris*, and *Rozin*, it also serves for a Purge. Made into a Pessary, with Honey, it cleanses the Uterus. It dissolves Hardnesses of the Breasts, conglutinates Wounds, and restrains the Herpes, if made into a Cataplasm, with Honey, for these Purposes. *Dioscorides, Lib. 3. Cap. 175.*

The same Author informs us, that, in *Pontus*, it was call'd *Holocyon*, ὁλόκυον; at *Athens*, *Ionia*, *Ionia*; and in *Eubœa*, *Siderites*, σιδερίτης.

Ground-pine is hot and dry, warming and strengthening the Nerves, helps the Palsy, Gout, Sciatica, and Rheumatism, the Scurvy, and all Pains of the Limbs. It is a strong Diuretic, opens Obstructions of the Womb, and powerfully promotes the Menstrues, and that so strongly, that it is forbid to Women with Child, for fear of Abortion. *Miller's Bot. Off.*

This Plant is bitter, aromatic, and gives a faint red Colour to the blue Paper; by which it seems to contain some aromatic oily volatile Salt, loaded with a great deal of Sulphur and Earth; for, by the chymical Analysis, the *Ground-pine* yields several acid Liquors, a little urinous Spirit, a great deal of Oil, and more Earth.

No Wonder, then, if this Plant restores the ordinary Course of the Spirits and Liquors in the Nerves and Capillary Vessels; whence it is very good in nervous Affections. It is diuretic, emmenagogic, and dissipates the Cause of the Gout. Drink its Infusion in Wine, or make a Pisan of it, with *Germanander*. The Juice enters *Nicolaus Salernitanus's* Arthritic Pills. *Martyn's Tournefort.*

2. *Chamæpitys Moschata foliis serratis an prima Dioscoridis, C. B. Pin. 244. Tourn. Inst. 208. Elem. Bot. 177. Boerh. Ind. A. 183. Raii Hist. 1. 574. Chamæpitys altera, Offic. Chamæpitys Moschata, Cod. Med. 34. Chamæpitys sive Iva Moschata Monspeliensis, J. B. 3. 425. Chamæpitys, Iva Moschata Monspeliaca, Ger. 422. Emac. 525. Chamæpitys Anthyllis altera Herbariorum, Park. Theat. 282. FRENCH GROUND-PINE.*

It is often found in *France*, and flowers in *June*. The Herb is used. *Dale.*

Besides the two preceding Species, *Dale* mentions a third.

3. *Chamæpitys tertia seu Mus, Offic. Chamæpitys odoratior, Park. Theat. 283. Chamæpitys incana exiguo folio, C. B. Pin. 249. Chamæpitys folio non laciniato, J. B. 3. 297. Chamæpitys folio non laciniato seu tertia Dioscoridis Matthiolo, Chab. 431. Raii Hist. 1. 574. Chamæpitys tertia Dodonæi, Ger. Emac. 532. ITALIAN GROUND-PINE.*

This is common in *Italy*, where it flowers in *June*.

Dioscorides says, that the two last are possess'd of the same Virtues as the first, but in a weaker Degree.

CHAMÆPLION. A Name in *Oribasius* for the *Erysimum*.

CHAMÆPYXOS. A Name for the *Pseudo-chamæbuxus*, *Park.*

CHAMÆRAPHANUM. The upper Part of the Root of *Asium* is thus call'd by *Paulus Aegineta, L. 7. C. 10.*

CHAMÆRIPHES. A Name for the *Palma humilis; Dactylifera; radice repente, sobolifera; folio strobiliformi, pedunculo spinoso. Boerh. I. A. Pars 2. P. 169.*

CHAMÆRODODENDROS. See *ÆGOLETHRON.*

CHAMÆROPS. A sort of Palm, call'd *Palma; Chamærops; Plinii. Boerh. I. A. Pars 2. P. 169. See PALMA.*

CHAMÆRUBUS. A Name for the *Rubus; Alpinus; humilis. Boerh. Index A. Pars 2. P. 60. See RUBUS.*

CHAMÆSYCE. A Name given to some Species of the *TITHYMALUS*, which see.

VOL. II.

CHAMÆZELOS, χαμαιζελος. Low, depress'd. *Hippocrates.*

CHAMBAR. The same as *Magnesia. Rulandus.*

CHAMBELECH. An Elixir. *Rulandus.*

CHAMBROCH. Trefoil. *Castellus* from *Paracelsus.*

CHAMELÆA. See *CHAMÆLÆA.*

CHAMEUNIA, χαμευνία, from χαμαι, on the Ground, and ἰσνῆ, a Bed. A lying on the Ground, or on any hard Place. *Galen.*

CHAMPACAM, H. M. An Flos Indicus *Champacca dictus Bontii, An Champe dicti flores Indici Garziae, I. B.*

A large tall Tree, which grows in the *East Indies*, and bears very fragrant Flowers, twice a Year, but no Fruit, till much advanc'd in Age.

The dry'd Root, and its Bark, bruise'd, and mix'd with thick Milk, call'd *Dayr*, serve to mature and break Abscesses; pulveriz'd, and given in warm Water, they provoke the Menstrues, and expel the Fœtus. The Flowers bruise'd, and boil'd in Oil, make an Ointment for the Head-ach, diseas'd Eyes, and the Gout; expos'd to the Sun in Oil, for forty Days together, they work the same Effect. The distil'd Water of the Flowers has a fine Smell, and cheers the Heart. *Ray* thinks this Tree to be the *Champacca* of *Bontius. Raii Hist. Plant. p. 1642.*

CHANCRE.

Chancres are reputed among the first Symptoms which appear in the Venereal Disease, and *Antonius Musa Brasavolus* observes, that the Pusches on the Prepuce, Glans, or on both, are occasioned by the Sharpness of Humours, which are stirred in time of Coition, and the malignant Quality of the Venereal Taint contain'd in the Vagina, or that flows from the adverse Party. This being premis'd, it is certain the Chancres on the Frænum and Prepuce differ very much from those on the Glans, and other Parts. For these are a sort of Tumor with hard Edges, and the former rise not above the Skin, but are likewise hard, and shed a watery Substance. They resemble the Sores on the Inside of the Lips, we commonly call Cankers; and all these Names vary little from those of the *Greek* and *Latin*, first given them. Now, as both Kinds of Chancres are hard, their Liquors corrosive, and agree in many other Qualities observ'd about Cancers, they are properly enough said to χαμίνισθαι. And the common Use of Cancers, and Carcinoma, among *Greek* and *Latin* Authors, sufficiently warrants the analogical Name given to these new Sores.

The Cure of Chancres, especially of those of the Frænum and Foreskin, having greatly perplex'd and puzzled Authors, they did not sufficiently attend to their Nature or Symptoms; by which means the Description given of them has been obscure, and their Names ill ascertain'd. The corrupted Matter of the Gonorrhea, flowing out of the Penis, produces a Chancre; and if we reflect on their Hardness, and other Qualities, we must be persuaded, that this acrimonious Matter either coagulates the Liquors of the Parts it is apply'd to, or dissipates them; as we find Fire does, and renders the Parts harder; so that it bears some Analogy to Oil of Vitriol, Oil of Origanum, Lapis Infernalis, and other Caustics, or to Fire itself.

This single Coagulation, or even Dissipation of the Humours, sufficiently explains the Chancres on the Frænum or Foreskin, and other membranous Parts: But the Coagulation of the Liquors in the Glans, or their Obstruction, contributes more especially to produce the Chancres there, and to raise the Tumors that are observ'd in them, which are not to be seen in those of the Foreskin.

From considering the comparative Degrees of Corrosiveness in the Matter of a Gonorrhea, it is evident, that the Hardness of Chancres is not so much acquir'd by dissipating the Humours, as it is by their being coagulated. This is manifest from the Use of a Medicine which has been invented some Years ago, but never before communicated to the Public; for the Liquors may be resolv'd again by this Medicine, without any Pain, and the Chancre cured without any Loss of Substance; whereas, when escharotic Medicines are apply'd, they destroy the Part with much Pain, and give Occasion to Physicians to suspect, that the productive Matter of Chancres had some Resemblance to Fire in its Operation. *Cockburn*, by this Medicine, means that given below from this Author.

Now as Chancres are occasion'd by the sharp Matter of a Gonorrhea, which sticks to the Glans or Foreskin, the softest Nuts take the Infection most easily, and the Corrosion will be the strongest when the Quantity is the greatest. This is the common Case of Men, who have their Glans always cover'd with the Foreskin; for they have the softest Glans, and their Foreskin detains the Matter longest upon it; upon which Account both these Parts are most corroded with Chancres. By this Method of Reasoning, we become easily apprish'd how Chancres are communicated between the Sexes, in time of Coition; and the Way of their being form'd is a little more obvious, by what we often find when *Mercurius dulcis* is im-

properly given, and when it is not duly clear'd from its corrosive Salts; for then such Sores, as the Chancres on the Fore-skin, are produc'd in the Tongue and Cheeks.

Hence it follows, that we may easily determine when Chancres are as much Originals as the Gonorrhœa itself; when they are Symptoms; and when they are independent of it, or are the Effects of the Pox; and all this by observing the Times wherein the Chancres appear, and other Circumstances, with respect to a Gonorrhœa, and the times of Coition: A Difficulty so great at present, that it has eluded the Observation of the best Physicians, tho' they have been conversant in the Practice of every Part of the Venereal Disease. *M. Blegny* acknowledges all these different Kinds of Chancres I have mention'd, however surprising they will appear to some; and tho' he is not able to give us any Method whereby we may know them from one another, yet it is very proper to recite his Words. "We know by Experience, says he, that some are affected with Pains, Itchings, Warts, Ulcers, and Chancres, and yet, after all, are far from being pox'd." He speaks, indeed, of finding something peculiar in them, whereby the one Sort may be known from the other, but he has not hitherto made that useful Discovery; tho' this Difference is become very plain from the foregoing Accounts. *Cockburn of a Gonorrhœa.*

Astruc says, that Chancres are occasion'd as well by a latent Pox, as by a recent Contagion. And he tells us, that not only the Pudenda are liable to them, but likewise the other Parts by which the Contagion is admitted; as the external and internal Parts of the Anus in Catamites, the Nipples of the Breasts in Nurses; and in sucking Children, and those that receive the Poison by Kissing, the Lips, internal Cheeks, Gums, and Tongue.

He reckons the Seat of these Ulcers to be the sebaceous Glands.

He observes, that they seldom break out, if the Pudenda, immediately after a suspected Venereal Intercourse, are well wash'd with Wine, Water, or Urine.

When these Ulcers take an angular Shape, which is one Sign of Malignity, he says it is owing to the greater Degree of Virulence in the Venereal Poison, by which it spreads Corrosion more speedily thro' the neighbouring Parts.

In computing the Degrees of Malignity in these small Ulcers from their Situation, he says, those are more malignant, 1. That affect the Prepuce, than those which have their Seat in the Glans in Men: And in Women, those upon the Clitoris and Carunculæ Myrtiformes, than those which appear upon the Labia Vulvæ or Nymphæ. 2. That of those which affect the Glans, those are more malignant which break out upon the Frænum or Corona, than those upon its Back or lateral Parts. 3. And that those are more malignant which break out on the Margin of the Prepuce, than those which appear upon its middle or lower Part.

He accounts for these different Degrees of Malignity, from the greater Sensibility of the Parts in which they are most malignant.

Where these small Ulcers are frequent, and of a malignant Kind, he says, that by inflaming the Parts, they produce a Phymosis, Paraphymosis, Crystallines, Carcinoma of the Glands, Gangrenes, and Sphacelus.

As for the Diagnosis, he says, these Venereal small Ulcers are easily distinguishable from those Excoriations which sometimes happen from Coition with a Woman, who is just under an acrid menstrual Discharge, or has lately had one, or from the mere Acrimony of the Patient's proper sebaceous Secretion; because these Excoriations are broad, irregular, without any Callosity, and only superficial; and besides, they easily dry up, either of their own Accord, or by vinous or vulnerary Lotions. Neither, says he, is there any great Difficulty in distinguishing them from those Ulcers, which sometimes, tho' seldom, break out upon the genital Parts, as well as the rest of the Body; because these Ulcers are broad, irregular, and deep, without any surrounding Callosity or Mucus at their Bottom.

As for the way of distinguishing Chancres proceeding from a recent Contagion, from those that take their Rise from an old Pox, tho' he owns there is no certain Rule to judge by here, yet if they appear upon the Frænum in Men, upon the Carunculæ Myrtiformes, Nymphæ, or Clitoris, in Women, if they are numerous and malignant, and if they perform their Stages speedily, he says, there is Reason to suspect, that they proceed from a recent Infection: Since those which are the Effects of an old Pox are generally endow'd with opposite Qualities, and do not affect the fore-mention'd Parts more than the other Parts of the Pudenda.

Those Chancres, he says, which have their Seat within the Extremity of the Urethra, are frequently confounded with a Gonorrhœa, tho' they may be distinguish'd by the following Symptoms: (1.) The Smallness of the Discharge. (2.) The Pain in Erektion, not in the Perineum, but in the Extremity of the Penis. (3.) A Pain felt at the Root of the Glans. (4.) By examining the Ulcer with the Touch of a Probe, or a

Wax-candle, in order to be able to judge of its State, whether callous or not.

As to the Cure, *Turner* says, That if there be only a simple Excoriation on the Glans or Prepuce, a Pledget of Diapompholygos may be sufficient; but if Ulceration, you must forward the Digestion, especially if there be Callosity, or Chancres, already form'd; at which times your red Precipitate of Mercury sprinkled thereon, with the Digestive over, may be convenient and proper also to deterge them. After which you need not be over-hasty to dry them up, till the Virulency is purged off, and corrected by Internals; lest, stifling the Venom here, it should shew itself after in other pocky Eruptions, and stand then in need of the Method of Cure for a confirm'd Lues. Again, if your Precipitate prove insufficient to correct the Virulency, and subdue the chancrous Excrecence, you may touch it with the Milk of corrosive Sublimate, or lay on a small Pledget express'd from the same; also a light Touch of the Butter of Antimony, or of the lunar Caustic, may be sometimes necessary: But if they still happen to improve in their Virulency, or grow more spreading and corrosive, whilst your Patient is purged with Mercurials, there is no better way of making Revulsion than by exhibiting eight, nine, or ten Grains (according to the Age, Strength, and Habit, as also Use to the like Medicines) of the Turpeth-mineral, in a Bole, with Conserve of Roses; and to repeat the same Remedy, if there be Occasion, at two or three Days Distance, twice or thrice, by which you will find the Chancre abate of its fretful Nature, and grow milder, and more manageable.

I shall not omit, says *Turner*, a Method which I have, of late Years, found always successful in overcoming these chancrous Ulcerations, either on the Glans or Præputium in Men, and the Labia, as well as Sinus Pudoris, in Women; and that is the smoking them with Cinnabar, thrown upon a hot Iron, or a common Heater, the Fume ascending thro' a Funnel, or a Seat perforated like the Close-stool, (which I make frequent Use of for such Purposes) all round the diseased Parts; one Dram of which Cinnabar I order to be sprinkled on at a time, every Day, and sometimes twice a Day, for a Week; the Iron, at the same time, being hot enough to raise a Flame with Smoak; but not so burning, or fiery red, as to make it instantly consume away in Flame alone. *Turner's Syphilis.*

Cockburn says, That, to bid an eternal Farewel to the long, tedious, and uneasy Practice of curing Chancres by Escharotics, he shall communicate a Method, whereby Chancres are cured in a very little time with great Easiness, without any Pain, Inflammation, Loss of Substance, or any Danger of extirpating the Member, or any Part of it. This Method does not require any Help from other Medicines for dissolving the Chancre, and healing the Part. It is done by an Ointment, not recommended on an Opinion or Persuasion, that it will succeed, but upon its Success for twenty Years past, the Efficacy whereof will sufficiently answer all the Expectation any Person can have of it, as it has already done to some Friends, to whom it was communicated some Years ago. The Method is short and easy, like the Medicine itself; for you are only to dress Chancres with this Ointment.

Take of Quick-silver, as much as you please; and of Venice Turpentine, a sufficient Quantity; mix up into an Ointment.

It is very proper to relate the Success of this Ointment, in some other and harder Ulcers; which will be the more acceptable, because the Sore is as unknown in *Europe*, as the Cure of it by this Ointment, and evinces the Efficacy of it at the same time. This Account was sent me from my Cousin Dr. *Cockburn* in *Jamaica*; which therefore I will add in his Words: "I cannot say I have tried your Ointment on Chancres, but I have made Trial of it on an Ulcer of the like Nature, but in a worse Place; which Trial was made on a Negro of my own, who had, what we call here, the *Crab-yaws*. They are a Sort of Ulcers, which come upon the Soles of the Feet, with hard callous Lips, so hard, that it is difficult to cut them. The general Method has been to pare them deep, and then to burn them with a hot Iron, or with some corrosive Powder; such as Roman Vitriol, or Verdegrise, and after all, with little Success. This Boy had one of these *Crab-yaws* on one Side of his Foot, where the Skin was very hard, to which, after it was par'd, I apply'd your Medicine; whereby all the Hardness was destroy'd in a few Days, and his Foot is now soft and well. The Consequence of this Experiment is very obvious, and forbids me to enlarge upon it." *Cockburn.*

Astruc is of Opinion, that the Cure of such Chancres as proceed from an old Pox, is only to be expected from mercurial Unction, which he advises to be set about without Delay. And this he takes to be the best Method of managing, even in those which are owing to a recent Taint; but as few Patients will submit to that, in an Evil which appears so slight, he

he lays down the easier Method by repeated Venesection, the Use of emollient Fomentations, and Anodynes; Mercurials, by way of Alterative, either externally or internally administered, till a Salivation approaches, then purg'd off, and repeated as often as is necessary. After which he advises the Use of sudorific Decoctions of *China*, Sarsaparilla, Guaiacum and Sassafras, boil'd with Antimony.

He recommends much the same Ointment as that describ'd above from *Cockburn*, with an Addition of Lapis Calaminaris and Sulphur, in a slight Chancre.

Take Lapis Calaminaris, half an Ounce; Sulphur and Quicksilver, each a Dram; Turpentine, a sufficient Quantity to divide the Particles of the Mercury, adding a small Quantity of Hogs Lard.

In more obstinate Chancres, *Astruc* advises the touching them slightly with the common or lunar Caustic; or rather the sprinkling upon them the red or yellow Precipitate of Mercury, on which Spirit of Wine has been burnt, mix'd with an equal Quantity of Cerus in Powder; or else the white Precipitate of Mercury, mix'd with the Yolk of an Egg boil'd hard, and reduc'd to the Form of an Ointment with Honey. In order to ease the Inflammation, if troublesome, he advises the Application of warm Milk; Decoctions of the Roots of Water-lilies, and Marsh-mallows; or Mucilage of the Seeds of Flea-wort, and Flax, extracted with Rose-water, or fresh Cream; or the Yolk of an Egg, either alone, or beat up with Oil of Lilies; or the Unguentum Album Rhasis; or Cataplasms of the Crums of Bread. These are to be repeated frequently, that the inflam'd Part may be perpetually kept moist, and relax'd by them.

The Falling off of the Eschar is to be promoted by the Application of fresh Butter, the Yolk of an Egg, the common Digestive, or Basilicon; or of Anodyne Topics, which promote Suppurations.

But whatever Value some may put upon the before-mentioned Remedies, the following Ointment, for ready and common Use, is to be prefer'd before them all. It is prepar'd of one Part of red Precipitate of Mercury, and six or eight Parts of Unguentum Basilicon, well beat together in a Marble Mortar. This is a safer, as well as more effectual Medicine than the others; for the Acridness of the mercurial and corrosive Parts is so temper'd by the balsamic Parts of the Unguentum Basilicon, that they imprint only a superficial Eschar, by a gentle Erosion, without any Inflammation, and the suffering Part itself is, at the same time, so mollify'd by the Basilicon, that the small Eschars thus made soon fall off by Bits, without any considerable Increase of the Ulcer.

Strong Escharotics are always to be avoided as most destructive; such are all arsenical Preparations, corrosive Sublimate of Mercury, Oleum glaciale Vitrioli, Aqua Stygia, or Aquafortis, obtain'd from Nitre, Vitriol, Alum, or Sea-salt, by the Heat of the Reverberatory; the Aqua-mortua, or Secunda of the Goldsmiths, in which Silver has been first dissolv'd, and afterwards precipitated by an Injection of Copper, with many other such kind of Medicines, which imprint a deep Eschar, and excite a great Inflammation.

If, after Deterfion and Mundification, there remain any small Callosities in the Ulcer, it is better to resolve and discuss them, by degrees, with slight and repeated Inunctions of mercurial or Neapolitan Ointment for a few Days, than to attempt their Consumption by too free a Use of the stronger Cathartics, which would put the Patient to unnecessary Pain, and do a considerable Injury to the Part, by enlarging the Ulcer.

As soon as the Margin of the Ulcer, after the Removal of the mucous Matter, and the mollifying of the Callosities, appears soft, smooth, and of a rosy Colour, we must beware of the Use of Cathartics, which, by corroding, might prolong, and even dilate the Ulcer; and then we must employ only Traumaticks, or Vulneraries, to favour the Growth of the new Flesh, such as *Arcaus's* Balsam, or the simple Ointment of Basilicon.

The Ulcer, being fill'd up and smooth'd by the increasing Flesh, is easily cicatriz'd by the Use of the same Remedies; or, if it be thought convenient, the Place may be sprinkled with Powder of Tutty, Pompholyx, Cerus, or Turpentine boil'd to a Hardness and pulveriz'd; or dress'd with Elixir Proprietatis *Paracelsi*, which some extol as very effectual to this Purpose.

If the Disease, through the Carelessness of the Patient, the Violence of the Remedies, some Error in Diet, the Use of Venereal Commerce, or any other Cause, happens to be exasperated, by the Accession of more formidable Symptoms, such as an Inflammation of the Prepuce or Glans in Men, or of the Nymphæ, Caruncule, or Clitoris, in Women, we are then to desist from the Use of Escharotics, and attempt for some time not to make a perfect Cure, but employ only palliative Remedies.

The same Method is to be us'd for Venereal Ulcers, which sometimes arise at the End of the Urethra, by instilling the same Remedies, Drop by Drop, in the same Order, and with the same Cautions, in the Part; or injecting them with a short Syringe, or introducing them with a Probe, which ought to be repeated every Day, as often as, through the Declivity of the Place, or the Emission of the Urine, the Part shall happen to be absterged. But we must take care not to stop the Passage of the Urethra with a Tent, that it might retain the Ointment, as we have known it practis'd by some Surgeons to the great Injury of their Patients, by the Retention of the virulent Matter issuing from the Ulcers, which, corroding the sound Parts, gradually increas'd the Disease.

During the whole Process of the Cure, the Penis is to be ty'd up with a Fillet, in a supine Posture, that the Declivity of the Way may give Occasion to a freer Regress of the Blood, than can be expected from a prone or pendulous Position of the Penis, and consequently that there may be less Danger of an Inflammation or Tumefaction. As to Diet, it will suffice to prescribe such as is of a tempering and moistening Quality, and moderate in Quantity, unless a Fever, Inflammation, or some other formidable Symptoms, shall require a stricter Abstinence. *Abstruc de Morb. Vener.*

Boerhaave give a very different Account of Chancres, and Venereal Ulcers, from all former Authors.

When a certain red Spot, says he, appearing upon the Glans or Prepuce, swells into a Tubercle, fill'd with a whitish, yellowish Matter, of the Consistence of new Cream, like that almost void of Tenacity or Ropiness to the Fingers, and which, when it dries upon the stiffened Linen, appears of a Colour between Green and Yellow; then the Disease always bodes unluckily, the Cure is not so easily perform'd, and the prudent Physician is now with Reason alarm'd. This Tubercle is what the Surgeons usually call a Chancre; which I have always found to have its Seat in the unctuous Humour, which, in a natural and sound State, fills that vesicular Texture, call'd by the Antients, the *Panniculus Adiposus*, by the Moderns *Membrana Cellulosa*. See *CELLULOSA MEMBRANA*.

When, therefore, this contagious Poison, admitted by the Pores of the Cuticula, has made its Way thro' the Substance of the Skin into the Cells of the adipose Membrane, and there has mixed itself with the unctuous Mass, then it poisons, with its virulent Quality, this tenacious Oil: In this oily Lentor it is locked up, fomented, and, growing every Day more sharp and active, by Heat, Motion, and Stagnation, above it corrodes and destroys the Skin and Cuticula, while all around and below it spreads its Poison thro' the pinguedinous Cells: Whence, in such Cases, there is always a wider Breach made in the *Panniculus Adiposus*, than in the Skin which covers it. The Tubercle, thus occasioned, rising by degrees, attended with a Tensity, and at last with Pain, breaks out at the most prominent Part, and throws out such a Matter as I have already described. As often as this is wiped off, new Matter still succeeds; the Ulcer runs Pus without Intermission, nor does all this Suppuration separate the affected from the sound Parts. On the contrary, the same Venom, propagated thro' the neighbouring Parts, procures a constant Supply of new Pus; and in this manner the Ulcers, which always have their Seat in the Adipose Membrane, become larger by degrees; by a slow Progress they corrupt the common Teguments, and discover the Muscles stript of their Involucra, tho' otherwise entire, and of a glossy Surface, and high-red Colour. The Lips of these Ulcers, in such Parts as are covered with the Skin, never appear swollen or retorted, but contracted, smooth as if polish'd, and of a pale Colour; and the Matter which they discharge is so remarkably different from what other Abscesses yield, that one who is tolerably versed in this Disease can, at first Sight, distinguish it from the Ichor and Sanies of all other Ulcers, and the Lymph of Cancers; for the Pus produced in this Disease shines like melted Tallow, it has scarce any rosy Lentor, its Colour is of a particular dirty White, and, at the same time, inclining to Green. It scarce discovers any Acrimony, by producing either Heat, or Pain, or Twinging; nor does it spread Destruction any further than thro' the cellular Membrane, which it resolves into a putrid Mass, but without any considerable Sense of Pain. An often as an Ulcer of this Kind happens to heal up, the Skin of the Part, to its great Deformity, becomes attached to the subjacent Muscles, a Cavity remains, the Muscles continue immoveable, and the Part rigid, with an unseemly livid reddish Colour. The new Teguments are very tense and dry, they scarcely permit any of the perspirable Matter to pass thro' them, and their violent Tensity gives them a shining Appearance. After this Cure, unjustly reputed so, is performed, immediately the like Mischief breaks out in some neighbouring Part, describes the same Course, and leaves the same Marks behind it. Sometimes these virulent Ulcers are scattered thro' a great many different Places at once over the Body, which they at last consume. I once saw, in a handsome young Nobleman, the whole Extent of the Back lay'd here: